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Table of Contents

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ORIGINAL ARTICLES— Page

The Use of Lap Safety Belts in Motor Cars: A Review, by J. H. W. Birrell 505
A Survey of the Cranial Dimensions of the Australian Baby, with an Assessment of Maternal Age, Gestation Period and Duration of Labour, by Peter F. Sinnett 510
"Novocain" (H_3) in Geriatrics, by T. O'Connell and F. Ofner 514

REPORTS OF CASES—

A Case of Carcinoidosis, by K. B. Orr 516
Herpes Simplex of the Fingers, by A. H. B. Chancellor and A. M. Murphy 517

REVIEWS—

The Doctor and the Minister 518
The Pocket Prescriber and Guide to Prescription Writing 518
A Short Synopsis of Human Protozoology and Helminthology 518
Shapes of Sanity 518
A Primer of Medicine 519
Nutritional Evaluation of Food Processing 519
Hypertension, Volume VIII 519
The Heinz Handbook of Nutrition 519
The Modern Treatment of Asthma 519
From Girlhood to Womanhood 520
Ciba Foundation Colloquia on Ageing, Volume 5 .. 520

BOOKS RECEIVED 520

LEADING ARTICLES—

Doctor-Clergy Relations 521

CURRENT COMMENT—

Pseudomonas Iufections 523
Editorial Changes 523

ABSTRACTS FROM MEDICAL LITERATURE—

Oto-Rhino-Laryngology 524
Pathology 525

BRITISH MEDICAL ASSOCIATION— Page

Victorian Branch: Scientific 528

OUT OF THE PAST 530

CORRESPONDENCE—

Care of the Aged and Chronically Ill 530
Pulmonary Hydatid Disease 531
Paget's Disease of Bone in New South Wales .. 531
The Baby's Birthright 532
The Sending of Pills by Post 532
An Australian Medical Association 532
Furaltadone—A Clinical Trial 533
Hæmolytic Disease of the New-Born 533
The Medical Practitioners Superannuation Fund .. 533
An Anusual Ear Infection 533
The Dangers of Phenyl-Containing Drugs 534

OBITUARY—

James Stewart 534

ROYAL AUSTRALASIAN COLLEGE OF SURGEONS—

Primary Examination for the F.R.A.C.S. 534
Faculty of Anæsthetists: Primary Fellowship Examination 535

DISEASES NOTIFIED IN EACH STATE AND TERRITORY OF AUSTRALIA 535

POST-GRADUATE WORK—

The Post-Graduate Committee in Medicine in the University of Sydney 535
Seminars at the Royal Prince Alfred Hospital .. 536

NOTES AND NEWS 536

NOMINATIONS AND ELECTIONS 536

DIARY FOR THE MONTH 536

MEDICAL APPOINTMENTS: IMPORTANT NOTICE .. 536

EDITORIAL NOTICES 536

THE USE OF LAP SAFETY BELTS IN MOTOR CARS: A REVIEW.

By J. H. W. BIRRELL, M.B., B.S.,
Police Surgeon, Melbourne.

IT is only in recent years in America and some other countries that it has been realized that the classical methods of preventive medicine have much to offer in the delineation and solution of many of the problems posed by motor vehicle collisions.

It is recognized that there are three levels in the occurrence of a motor vehicle collision where the principles and practices of preventive medicine have practical applications. Firstly, and perhaps most obviously, one aims at the prevention of the collision. Secondly, after the collision has occurred, injury has to be prevented or minimized. Thirdly, after the injury has been inflicted we must attempt to minimize any disability resulting from that injury.

In Australia the attention of the medical profession has been largely devoted to the third level. However, even at this level, involving as it does first-aid treatment, transport to hospital, treatment and rehabilitation, there is considerable room for improvement. There is most definitely great need for improvement in the field of accident prevention.

However, it must be admitted that, even in the unlikely event of an all-out community drive for accident prevention, one would not expect prevention to be complete. So it is with a portion of the second level, namely crash-injury prevention and minimization in a motor vehicle by means of a lap safety belt, that this paper is concerned.

Data.

The public health approach to road traffic collisions, although developed only in the last fifteen years, is well under way at a number of centres in the United States, Harvard, Cornell and Northwestern Universities being three notable examples.

This approach involves an extensive, but particularly intensive, consideration of the relationships between the host or driver, the agent or vehicle and the environment, roads and other objects. The basis of any such consideration must be a series of accurate measurements of the various variables. Unfortunately this approach is not used in Australia. This point is made to explain the fact that this review, of necessity, is based entirely on the magnificent work on crash research being done at Cornell University, New York. Until we in Australia knuckle down and collect similar data on Australian vehicles and casualties, Cornell's work must stand as our guide. While Australian research, when and if done, may well alter Cornell's findings in detail, it is unlikely to alter the principles already stated by Cornell.

It has been pointed out that large buildings, laboratories and finance are not necessary to set this research in train (Birrell, 1960).

The work at Cornell was begun in the early 'forties simply as a piece of research on the effects of trauma. It was not specifically directed towards motor vehicle collisions, but was rather an investigation of human injuries under various impact conditions. The investigators first studied suicide jumps and accidental falls, establishing that severe impacts were not necessarily fatal, or even injurious, provided that the forces were distributed widely and gradually. This and corollary principles formed the basis for a methodological investigation of aircraft injuries. They were then able to prove that injuries sustained in aircraft accidents could be prevented or moderated through design engineering. The research methods used in the aircraft project were then brilliantly applied to vehicle collisions on the roads. This has resulted in a classical example of a medical study of automobile accident injuries by the use of standard epidemiological techniques.

Injury Patterns.

The starting point of any work to prevent injury in a motor vehicle collision must naturally be an investigation of the injuries which can and do occur in collisions. This work is of the first priority awaiting elucidation in Victoria, and indeed throughout Australia.

The Cornell group dealt with automobile accident injury patterns in terms of the frequency of injury to various body areas, their severity and their specific nature. Its report was based on the findings in 1000 automobile accidents with at least one person injured per crash. There were 2253 vehicle occupants involved, of whom 1678 (74·5%) were injured to some degree. It was found that 50% of the injured people suffered minor injuries only; 6·5% sustained a fatal injury and 6·4% received a serious to critical injury. At least one third of the injured people required definitive medical care, 50% of these requiring admission to hospital.

Head injuries were most common, followed in order by injuries of the extremities, the torso and the spine. Multiple injury was very common, consisting usually of a head injury combined with injury to another body area (Braunstein, 1957).

Speed.

A second important aspect of the Cornell research was a study of speed in injury-producing accidents (Moore, 1958). The findings were derived from 3203 cars involved in injury-producing accidents and carrying 7154 occupants. Only 25% of these occupants suffered no injury. Several facts emerged from the research.

Approximately 74% of the cars involved were travelling at speeds under 60 miles per hour, whilst approximately 88% impacted at speeds under 60 miles per hour. An examination of the relation between the increase in speeds and the frequency of dangerous or fatal injuries showed: (i) there were increases in the frequency of the grades of injury as impact or travelling speeds increased; (ii) the increases in these grades of injury were relatively small in the ranges progressing up to a 50 miles-per-hour impact and 60 miles-per-hour travelling speed. Beyond these points the increases in dangerous or fatal grades of injury became more marked.

Among all the persons in cars travelling below 60 miles per hour (or impacting below 50 miles per hour) 6% sustained dangerous or fatal grades of injury. Among all the persons in cars travelling above 60 miles per hour (or impacting over 50 miles per hour) 17% sustained such injuries. However, the near tripling of the risk of dangerous or fatal grades of injuries which occurred when the speeds were in the high ranges applied only to the occupants of 25% of all cars studied. Many factors other than speed operated to produce injury in automobile accidents. Acting independently, interdependently or together with speed were such factors as ejection, the seat position and the site of the crash impact.

In the bulk of injury-producing accidents, dangerous or fatal injury in the low speed ranges—except where ejection occurred—appeared very largely to be a function of the shape and form of interior car components, whether these were struck and what parts of the human body struck them; such injuries in the higher speed range were apparently associated with an interacting combination of both the dynamic results of speed and the design of the car.

One of the most interesting findings is that complete and absolutely controlled top speed limits would afford relatively limited reduction in the expectancy of dangerous or fatal injuries in injury-producing accidents; strict maintenance of a top travelling speed of 49 miles per hour would still have seen the occurrence of 60% of the dangerous or fatal injuries.

Ejection.

A study of ejection of the occupants of crashed vehicles was also made (Tourin, 1958). This particular study was based on information from accidents involving 3261 vehicles with 7337 occupants. Fourteen *per centum* of all the occupants were completely ejected from the vehicles. At least one occupant was injured in each vehicle.

As can be seen in Table I (adapted from Tourin's paper), the ejected occupants of passenger vehicles have a much higher risk of fatality than those not ejected.

Three hundred and fifty occupants studied have been omitted from the discussion since the details of their ejection were not completely reported.

The frequency of ejection from doors which opened under crash-impact conditions varied according to the severity of the accident and the seat occupied. The fatality risk was also influenced by these two factors.

It can be seen that ejected occupants have a five times greater risk of fatality than those not ejected.

A comparison of the observed with expected fatalities based on simultaneous consideration of the ejection risk, the accident severity and the seat area occupied, demonstrated that the prevention of ejection from passenger cars could have reduced fatalities among passenger car occupants in the study by 25%.

The Investigation of Seat Belts.

As a result of this study on ejection two preliminary controlled experiments were set up which used the paired-comparison technique commonly employed in medical research to evaluate the effective use of various remedies.

Pairs of cars or people were selected on the basis of similarity of accident circumstances. The control factor lay in the one and only difference between them; one had a seat belt installation, while the other did not (Moore, 1957).

In the first experiment the object was to determine whether persons who did not have seat belts, and who were ejected from cars, had different injury risks from those who wore seat belts and who remained inside cars. The following were the findings derived from 46 matched pairs of persons. (i) Users of seat belts experienced less risk of becoming injured (to any degree, including minor) than the ejected non-users. (ii) Users of seat belts had less risk of sustaining moderate to fatal injuries (injuries requiring medical treatment) that the ejected non-users. The incidence of injuries of this type was almost 80% lower in the users of seat belts. (iii) Users of seat belts had less risk of sustaining a dangerous or fatal injury than the ejected non-users. The frequency of their injuries of this type was over 85% lower.

In the second experiment the object was to determine whether persons who wore seat belts, and who were retained inside the car, had different risks from those who did not wear seat belts, but who nevertheless remained inside the car after the collision. The findings derived from the occupants of 81 matched pairs of cars were as follows. (i) Users of seat belts had less

risk of sustaining injury than non-users. The frequency with which users of seat belts were injured was 60% lower than that for non-users. (ii) Users of seat belts had less risk of sustaining moderate to fatal injuries than did non-users. The frequency of their injuries of this type was about 60% lower. (iii) Users of seat belts had less risk of sustaining dangerous or fatal injuries than did non-users. The sample was not large enough to state the difference statistically.

At the same time as this field work of collecting pairs of accidents and subsequently analysing the damage and injuries was being conducted, the dynamics of car crashes were studied experimentally in the laboratory. The findings at Cornell can be summarized thus: (i) the seat belt does not appreciably change the velocity of the impact

TABLE I.
Increased Risk of Fatal Injury for Ejected Occupants.

	Occupants Not Fatally Injured.	Occupants Fatally Injured.	Total.
Occupants ejected	876	121 (12·1%)	997
Occupants not ejected ..	5843	147 (2·5%)	5990
Total	6719	268 (3·8%)	6987

of the head from that of the free body condition during a crash; (ii) however, the seat belt does appreciably reduce the energy of the blow to the head from that of the free body condition; (iii) the energy of the impact blow to the head is increased by the raising of the arms (as in a manner to protect the face) over that when the arms are in the lap; (iv) when the seat belt alone is used the safest position of the head is tight against the panel, padded with the forearm; (v) the average man, aided only by a seat belt and using his back muscles alone, cannot prevent an impact blow of greater than approximately 4 G; (vi) the principal beneficial effect of the seat belt (apart from the prevention of ejection and flying movements within the car) is to restrain the mass of the trunk, and thus reduce the total impact force expended by the head when it strikes a forward object.

Discussion.

The work at Cornell has been reviewed at length for a particular reason. The lap safety or seat belt in a motor vehicle has already become the butt of a remarkable number of old wives' tales, almost comparable to those surrounding pregnancy.

A consideration of the work at Cornell quoted above will immediately answer practically all the objections to seat belts.

It should be stated that people can be killed wearing safety belts (at least two cases have already been noted in Victoria in the last six months). Further, it should be emphasized that the lap belt is not a "cure all", but is simply an effective, if somewhat cumbersome, interim safety device.

The principal objections to, or criticisms of, seat belts merit discussion. One driver will say: "I always drive at 30 miles per hour, so I don't need a seat belt." A variant of this plaint is: "I only drive for short distances round the city." There are several aspects of this objection. First, it has been shown experimentally at Cornell that one's head can receive quite a nasty skull fracture at as low a speed as 11 miles per hour if the impact area is small and the force therefore concentrated—that is, if one's head strikes one of the numerous knobs on the dashboards of vehicles. Secondly, one may be travelling sedately and correctly or even be stationary but be hit by another vehicle travelling fast; this collision may result in both considerable impact speed and also considerable injury, if one is not protected from movement within the vehicle. Thirdly, Moore showed in his 1958 paper that, with an impact speed of only 30 to 39 miles per hour, 5·5% of the car occupants in his study group suffered dangerous or fatal injury.

Another driver will say: "So-and-so had his life saved by being thrown out of the car before it crashed." The first, the most important and the complete answer to this objection is in the Cornell over-all finding that ejection from a crashing vehicle increases the chances of fatal injury five times. If one is retained behind the wheel as a driver then one may be able to regain control of the vehicle after an initial impact, thereby avoiding a final disastrous crash. There is no doubt that occasionally there are freak accidents in which ejection apparently results in the saving of a life, but on the other hand it has been most

TABLE II.[1]
Effect of Seat Belt in Reduction of Serious Injury

Type of Injury.	Occupants Without Belt. Percentage with Injury.	Occupants With Belt. Percentage with Injury.	Improvement Percentage.
All grades	75·5	29·9	60·4
Grades moderate to fatal ..	23·0	9·2	60·0

[1] This table is adapted from Moore (1957).

disappointing in my experience to see hundreds of collisions, causing many deaths and serious injuries, in which, although the exteriors of the vehicles have been extensively damaged, the interiors are relatively untouched. One case may be cited in which a new car was moderately damaged on the outside, the only damage inside being a broken back window against which the driver had floated and broken his neck. In the great majority of these cases packaging of the driver and passengers with lap belts would have resulted in little or no injury.

A further objection may be: "What if the wreck catches fire?" Few wrecked vehicles catch fire. In the Cornell series only 0·5% caught fire or were submerged in water, and the proportion in Victoria would be possibly even less. It is a sad commentary on the state of accident investigation in Victoria that we do not know whether this is so. Again, all lap belts have a quick-release catch requiring only fractions of a second for the victim to release. It can be unfastened equally quickly by a would-be rescuer.

Still another objection is: "Can't the seat belt cause rupture of the abdominal viscera?" The human body has a great tolerance for stress across the pelvic area. Restraint by a lap belt is roughly at the level of the centre of gravity of the body, but also it is across the strongest part of the body frame. It has been shown at Cornell (De Haven *et alii*, 1953), by virtue of the investigation of 800 people surviving aircraft accidents with lap safety belts, that the human body is easily capable of breaking a 3000 lb. test belt without evidence of injury to the abdominal viscera—apart, that is, from some bruising of the hips. Colonel John Stapp, on a rocket sled, has taken forces much greater than this with a lap belt, with no evidence of any damage to his abdominal viscera.

"Won't I still hit the windscreen or dashboard?" This question is sometimes asked. This is obviously the case with a lap belt, but (and this is the important point, by virtue of the restraint of the trunk and some slight control over the motion of the upper part of the body) the impact of the head blow is reduced to between one-third and one-quarter of the impact without a belt (Tourin, 1958).

"Wouldn't a shoulder harness be better and safer?" A shoulder harness naturally is a still more effective device than the lap belt alone, but the psychological barriers against the wearing of a shoulder harness are much greater than those against the wearing of a lap belt. In fact, many more people would wear a lap belt than would wear a shoulder harness. Claustrophobia, the difficulty of fitting, the wrinkling of frocks and the fact that the seat would

have to be taller and reinforced are some of the reasons for the lack of public acceptance of the shoulder harness. Indeed, one of the practical limitations in the evaluation of the seat belt as a safety measure is that the occupants of the vehicle do not always use it. Thus an independent study in California (Tourin and Garrett, 1960), under the auspices of the California Highway Patrol and Cornell University, showed that only one-third of the occupants were using the belts at the time of the accident. Even more disappointing was the finding that in 54,348 vehicles involved in accidents in the period from January to June, 1958, and reported by the California Highway Patrol, only 3·6% of the vehicles were equipped with one or more belts. However, an extension of the same study completely confirmed the usefulness of safety belts as already indicated by the original Cornell work. This study (Tourin and Garrett, 1960) showed that "with due regard for the influence of specified accident factors users of safety belts sustained 35% less 'severe-fatal' grade injuries than did non-users". The belts frequently reduced "severe-fatal" injuries to "minor".

Most Victoria police patrol cars have been fitted with lap-type belts, and at least four men owe their escape from serious injury, if not from death, to the fact that they were wearing belts at the time of a violent collision. On the other hand, two serious collisions have occurred, fortunately without severe injury, where the police occupants were not wearing the installed seat belts.

"Won't seat belts encourage the wearers to drive faster?" There is no doubt that the wearing of a seat belt makes one feel much more secure and allows better driving control, particularly when sudden, unexpected difficulties in the road situation are met at speed. I have twice had the experience of coming suddenly on bad ruts in the road at speed at night; in each case the belt stopped me from being flung violently away from the wheel, and enabled me to retain complete control. If anything, the tendency with a belt is to drive more steadily, since the very presence of a seat belt is a reminder of the possibility of a crash. Apart from the cost, this may be the major reason why some automotive industry leaders will not install lap safety belts as standard equipment. A potential buyer, seeing a new car with seat belts, may receive a suggestion, consciously or subconsciously, that he could crash—and this might stop him buying.

Tourin and Garrett (1960) point out that the Californian study was based on a series of rural collisions and that their data cannot be presumed to apply to suburban areas, but nevertheless one of their surprising findings was that cars in the safety-belt group travelled faster than those in the "no-belt" group. Certainly a number of police cars were involved in the belt group, but these were found to be travelling more slowly than the non-police, safety-belt cars. The more likely explanation was that drivers with safety belts were professional drivers travelling long distances on roads permitting high speeds. Certainly there were more accidents of the roll-over type in the seat-belt groups. However, at the moment the Californian work does not supply sufficient data to explain the increase in speed that accompanied the use of safety belts.

Two other advantages of lap belts are worth mention. Firstly, their use renders driving much less fatiguing, particularly for a nervous passenger in a car travelling on bad roads. Secondly, their installation in the rear seat is a step towards stopping the pernicious habit of carrying babies and young children in the front seat, or, worse still, allowing them to stand on the seat or with their noses against the windscreen. This habit virtually ensures head injuries for the child, even in the event of sudden braking apart from an actual collision. One finds incidentally, and perhaps surprisingly, that children need little encouragement to wear seat belts.

One difficulty with an article such as a safety belt is the difficulty of ensuring that each belt will do the job for which it was designed. Further, the material of which the belt is made should be stable and not deteriorated by age or such physical agencies as sunlight. Thus it should be emphasized that nylon is unsuitable as a material for belts because it deteriorates badly on continued exposure to sunlight. It is good to see that the Standards Association of Australia already has moved in the matter and is about to produce a standard specification for safety belts (A.S. No. E35, to be published shortly).

The main requirements of a safety belt are already the subject of standard specifications in Britain and America. These standards require that the webbing shall not break under a load of 3000 lb., and further, that the webbing will not elongate more than 25% under a given load. It is essential that the securing buckle should be positive in action and capable of quick release. The effort required to release the buckle should be a minimum—for example, if one is in a crashed car upside down one should be able to release the buckle with one hand and protect oneself with the other. The most satisfactory materials for the webbing of the lap strap appear to be the synthetic polyester fibres. Recently a belt made of "Terylene" was retested by the Victoria police after a year's use (including use in a near-fatal accident), and found still to require a breaking strain of well over 3000 lb. The Australian standard will be slightly higher in some respects than the American or British.

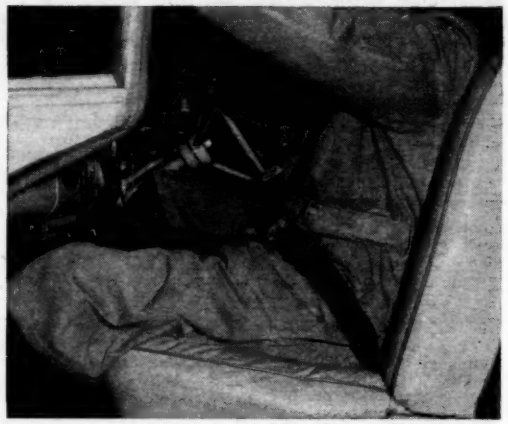

FIGURE I.
Driver with lap seat belt in position. Note the quick-release buckle.

In accordance with the findings at Cornell it is recommended that the belt be installed so that it is in the approximate longitudinal vertical plane of the car. It should be at an angle approximately 45° from the horizontal. This angle is necessary since (i) the vertical belt does not provide the horizontal component necessary to hold a person back in the seat, and (ii) the horizontal belt is ineffective since it does not give the vertical component necessary for stabilization.

Figures I and II show a car fitted with an "Aveng" seat belt (manufactured by the A.E.S. Trading Company, Ferrars Street, South Melbourne). The belt is made of "Terylene" and is bolted to the floor. The belt is sold complete for fitting, with highly tensile steel bolts and reinforcing plates of steel for the attachment of the harness to the floor.

It should be mentioned in passing that there are other safety harnesses which are neither shoulder harness nor lap belts—for example, the diagonal belt which is used in Sweden. I have no information as to its effectiveness, as the Cornell work was concerned exclusively with the simple lap safety belt.

Safety belts, while cumbersome and, indeed, something of a nuisance, are without doubt the best temporary measure to guard against severe injury and death in

a collision. They have the advantage that they can be retrofitted to practically all existing cars, but they have disadvantages too. First, the owner's participation is required to fit the belt and second, the occupant's participation is required to the extent of using the belt. The problem of owner-participation in the fitting of belts would eventually be solved if belts were made standard equipment on all new cars. However, ensuring the usage of belts once fitted will require a planned and continuously sustained education programme.

The increase in safety through a reduction in the number and severity of injuries by the use of the lap

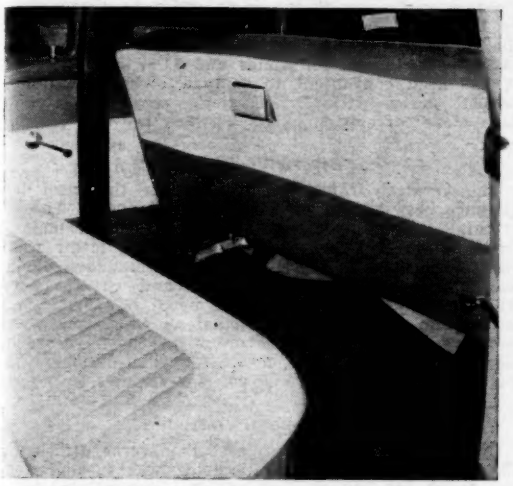

FIGURE II.
Attachment of safety belt to the floor of the vehicle.

safety belt is large for an item costing a little over £4 per person; this is perhaps higher than the price should be, but the imposition of Commonwealth sales tax has inflated the price. On the brighter side, particularly for the female segment of the population, seat belts can now be matched with car upholstery.

The work at Cornell University has, without doubt, pointed the way, galling and disappointing as it is to realize that there is no official projected work along similar lines envisaged in Australia. Professor J. S. Robertson in Adelaide has started collecting injury data.

Finally, to point out the fact that lap safety belts are not a panacea, and also to indicate that the public demand for safety has yet to become an important force, the following letter, slightly modified, is taken from an article by Gibbens *et alii* (1957). It is self-explanatory.

Form for requesting future automobile safety features.

To ..... Automobile Manufacturing Company.

Address ..... Date .....

Gentlemen,

I have (been injured in a car accident, lost a good friend or relative in a car accident, had a good friend or relative seriously injured in a car accident, been interested in reducing the number of deaths and injuries caused by motor cars). (Underline clause above which applies to you.) I would favour the building of safer cars and I would buy the safest car available. I would influence my friends to buy a safer car.

I would like the following safety features in my next car: (i) All-round safety belts for all passengers (these should be sold as standard equipment on all new cars); (ii) better roll-over frames; (iii) better safety door latches which will prevent doors flying open, particularly if the car rolls at high speed; (iv) crash pads on the entire dashboard, both top and bottom, and at the top of the windscreen (all seat backs should be padded); (v) elimination of all knobs, points and sharp edges inside the car and on the front end outside of car (this particularly applies to the rear-vision mirror); (vi) elimination of rear-window shelf in all models (if kept, it should be recessed); (vii) smooth, U-shaped or V-shaped front bumpers without jutting guards or ends (bumpers should be shock-absorbing); (viii) shock-absorbing or collapsible steering wheel with no protruding points or edges; (ix) a mechanical speed governor which can be set at .... miles per hour (I have teenagers in my family); (x) windscreen washers and demisters as standard equipment; (xi) other special features; (xii) I would favour national legislation to control top speed which can be manufactured into passenger cars.

Signature .....

Address .....

Gibbens *et alii* even go so far as to suggest that each practitioner should keep such forms in his waiting room and encourage his patients to use them.

Summary.

It is perhaps unfortunate that the lap safety belt was originally used to prevent a pilot falling out of a plane during the loop. Indeed, the survivor of such an accident first conceived the safety belt. However, this prime use has tended to make the motoring public (and the medical profession) regard safety belts as exotic and only to be used when the air hostess tells one to use them.

In summary, it can be concluded from the work at Cornell that lap safety belts of adequate standard, firmly anchored to the floor of the vehicle and properly used, are a most effective method of reducing injury and death in motor collisions.

Few people are in such a strategic position to teach safety as the medical practitioner treating road accident victims. It therefore behoves us as members of the profession to encourage the use of seat belts at every opportunity and to set the example by using them ourselves, more particularly as the profession's casualty rate on the roads is so high.

It is disappointing that no work comparable with that at Cornell is envisaged in Australia, where an almost incredible pandemic of road deaths continues to increase.

Acknowledgements.

I wish to record my thanks to Dr. Boris Tourin, Officer-in-Charge of Automotive Crash Injury Research at Cornell University, for his kindly help and permission to utilize material.

I am grateful to Dr. John Lane of the Department of Civil Aviation for his continued interest.

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A SURVEY OF THE CRANIAL DIMENSIONS OF THE AUSTRALIAN BABY, WITH AN ASSESSMENT OF MATERNAL AGE, GESTATION PERIOD AND DURATION OF LABOUR.

By PETER F. SINNETT,

From the Department of Obstetrics, University of Sydney, and King George V Memorial Hospital for Mothers and Babies, Sydney.

IN 1862 Dr. W. M. Turnbull wrote the following comments in *The Australian Medical Journal*:

> Sir,
>
> In the case of Law Vs. Farrage which occurred a few years ago the Chief Justice asked the question "If it were not the case that the infant's head is larger at birth here than in the Mother Country."
>
> As a commencement of the solution of this question I enclose the measurements of 16 heads taken by myself at the Lying-in Hospital 24 hours after birth, as a contrast I have added six heads from Dr. Simpson's work. A glance at both tables will show that we are not so long headed as the people at home.

In spite of recent interest in the mechanical problems of parturition, the extract quoted above represents the only attempt so far made to assess the cranial dimensions of the Australian baby. It was because of this deficiency in our knowledge that Professor Bruce T. Mayes of the Department of Obstetrics suggested that such an investigation would constitute a valuable contribution to our knowledge of local conditions.

Materials and Methods.

A series of 239 babies (124 males and 115 females) was measured within the first 24 hours of birth. Only cases in which the presentation was by the vertex (occipito-anterior), in which there was only one fœtus and in which the ante-natal history and labour had been normal (Mayes, 1954) were considered. Selection was limited to these factors.

Seven cranial dimensions were selected for assessment, namely, the occipito-frontal, biparietal, bitemporal, suboccipito-bregmatic, submento-bregmatic and vertico-mental diameters and the maximum head circumference. The choice of these dimensions was based on their usefulness in describing the process of labour rather than on their anthropological value.

The babies were held steady in the arms of an assistant, with the head orientated in the Frankfurt plane (Schultz, 1929). This is the horizontal plane passing through the inferior orbital margin and the tragus of the ear, perpendicular to the long axis of the body. Hrdlicka calipers were used for all the cranial dimensions except the maximum head circumference, which was measured by a highly flexible metal tape. All cranial readings were made in centimetres and were taken as accurate to 1 mm.

Two further readings — the length and the weight of the baby — are taken routinely by the labour-ward staff at King George V Hospital, and these readings were simply compiled by the writer; the length, being recorded in inches, was taken as accurate to the nearest half inch, while the weight was recorded in ounces and was accurate to the nearest quarter ounce.

The cranial measurements and the lengths and weights of the babies have been presented both as totals and separately for the two sexes.

From a study of the mother's pre-natal history and the labour-ward record in each case, it was possible to calculate the average age of the mother and her period of gestation, as well as to determine the duration of the first and second stages of labour — these results are presented below.

Definitions of Dimensions and Results of Survey.

Occipito-Frontal Diameter.

The maximum anterior-posterior diameter of the head extends from the glabella anteriorly to the most distant point on the occiput (the external occipital protuberance). This is the diameter of engagement in the case of a partly extended head in a vertex presentation. The range of this diameter was from 10·7 to 13·4 cm. for males and from 10·7 to 12·6 cm. for females. The mean was 11·9 cm. for males and 11·7 cm. for females. The standard deviation was 0·14 cm. for males and 0·41 cm. for females, while the standard error of the mean was 0·012 cm. for males and 0·038 cm. for females. The measurements are of the same order as those obtained by Dr. Erica Kugler at the Anthropological Institute of the University of Zurich in 1932; she assessed the mean as being 11·74 cm. for males and 11·57 cm. for females. It has been convenient to compare, where possible, the present series with Dr. Kugler's very complete work, as a close correlation exists between the two series.

Biparietal Diameter.

The greatest transverse diameter of the head is the distance between the two parietal eminences. The range of this diameter was from 8·1 to 10·3 cm. for males and from 8·5 to 10·2 cm. for females. The mean was 9·4 cm. for both males and females. The standard deviation was 0·37 cm. in the case of males and 0·34 for females, while the standard error of the mean was 0·033 cm. for males and 0·032 cm. for females. Once again, these readings are of the same order as those recorded by Kugler, who found the mean for this diameter to be 9·2 cm. for males and 9·05 cm. for females.

Bitemporal Diameter.

Often referred to as the least transverse dimension of the head, the bitemporal diameter was measured from the point of intersection of the coronal suture and temporal crest on one side of the vault to the same point on the opposite side. In this series the readings ranged from 7·1 to 9·4 cm. for males and from 6·9 to 10·0 cm. for females. The mean was 8·3 cm. for males and 8·2 cm. for females. The standard deviation was 0·4 cm. for both males and females, while the standard errors of the means for the two sexes were respectively 0·036 and 0·037 cm.

Maximum Head Circumference.

The maximum head circumference is the cranial circumference corresponding to the plane of the occipito-frontal diameter, and the landmarks are the same as for that diameter. Here the range of readings was from 31·7 to 38·8 cm. for males and from 32·1 to 37·2 cm. for females. The mean was 35·0 cm. for males and 34·4 cm. for females. The standard deviation was 1·18 cm. for males and 1·04 cm. for females and the standard error of the mean was 0·106 cm. for males and 0·097 cm. for females. Kugler records the mean of this circumference as being 35·07 cm. for males and 34·32 cm. for females.

Suboccipito-Bregmatic Diameter.

By definition, the suboccipito-bregmatic diameter extends from the bregma (anterior fontanelle) to the mid-point of the interval between the posterior fontanelle and the margin of the foramen magnum (Schultz, 1929). Such a posterior landmark, is of course, impossible to determine in a living child. Nor was the bregma found to be a satisfactory anterior landmark, as it encloses a considerable area without any fixed and definite measuring point. For this reason the suboccipito-bregmatic diameter was taken as extending from the point of intersection of two ink lines — one joining the right and left coronal sutures and the other the sagittal and metopic sutures — to the most distant point on the occiput. This represents the diameter of engagement of the fully flexed head in a vertex presentation and was thus the diameter of engagement of all the cases in

TABLE I.

Cranial Dimensions, Length and Weight of Australian Babies.

Dimension.	Total.	Number of Measurements.	Mean.	Standard Deviation.	Standard Error of Mean.	Coefficient of Variance (Percentage.)
Male Infants.						
Occipito-frontal diameter (centimetres)	1471·5	124	11·9	0·14	0·012	1·2
Biparietal diameter (centimetres)	1167·7	124	9·4	0·37	0·033	3·9
Bitemporal diameter (centimetres)	1026·5	124	8·3	0·4	0·036	4·8
Maximum head circumference (centimetres)	4332·8	124	35·0	1·18	0·106	3·4
Suboccipito-bregmatic diameter (centimetres)	1241·9	124	10·0	0·35	0·031	3·5
Submento-bregmatic diameter (centimetres)	1212·6	117	10·4	0·44	0·041	4·2
Vertico-mental diameter (centimetres)	1580·3	117	13·5	0·47	0·043	3·5
Length (inches)	2612·6	124	21·1	1·07	0·096	5·0
Weight (ounces)	15074·5	124	121·6	13·65	1·262	11·2
Female Infants.						
Occipito-frontal diameter (centimetres)	1340·9	115	11·7	0·41	0·038	3·5
Biparietal diameter (centimetres)	1078·9	115	9·4	0·34	0·032	3·6
Bitemporal diameter (centimetres)	944·0	115	8·2	0·4	0·037	4·9
Maximum head circumference (centimetres)	3955·6	115	34·4	1·04	0·097	3·1
Suboccipito-bregmatic diameter (centimetres)	1129·1	115	9·8	0·32	0·030	3·3
Submento-bregmatic diameter (centimetres)	1058·9	104	10·2	0·41	0·040	4·0
Vertico-mental diameter (centimetres)	1394·3	105	13·3	0·42	0·041	3·2
Length (inches)	2349·8	115	20·4	0·93	0·087	4·50
Weight (ounces)	13646·5	115	118·7	12·66	1·180	10·5
Total Male and Female Infants.						
Occipito-frontal diameter (centimetres)	2812·4	239	11·8	0·45	0·029	3·8
Biparietal diameter (centimetres)	2246·6	239	9·4	0·36	0·023	3·8
Bitemporal diameter (centimetres)	1970·5	239	8·2	0·13	0·008	1·5
Maximum head circumference (centimetres)	8288·4	239	34·7	1·16	0·075	3·3
Suboccipito-bregmatic diameter (centimetres)	2371·0	239	9·9	0·35	0·023	3·6
Submento-bregmatic diameter (centimetres)	2271·5	221	10·3	0·44	0·030	4·3
Vertico-mental diameter (centimetres)	2974·6	222	13·4	0·46	0·031	3·4
Length (inches)	4962·4	239	20·8	1·02	0·066	4·9
Weight (ounces	28721·0	239	120·1	13·29	0·860	11·1

the present series. The readings for this diameter varied from 9·1 to 10·8 cm. for males and from 8·9 to 10·8 cm. for females. The mean was 10·0 cm. for males and 9·8 cm. for females. The standard deviation was 0·35 cm. for males and 0·32 cm. for females, while the standard errors of the means were respectively 0·031 and 0·030 cm. Scammon and Calkins (1929) claim that head moulding produces a decrease of about eight to nine mm. in this diameter.

Submento-Bregmatic Diameter.

The submento-bregmatic diameter is the diameter of engagement in a face presentation and extends from the bregma (as defined in the preceding paragraph) to the anterior surface of the hyoid bone in the mid-line of the neck. Readings for this diameter varied from 9·5 to 11·6 cm. in the case of males and from 9·3 to 11·6 cm. for females. The mean was 10·4 cm. for males and 10·2 cm. for females. The standard deviation was 0·44 cm. for males and 0·41 cm. for females and the standard error of the mean was 0·041 cm. for males and 0·040 cm. for females.

Vertico-Mental Diameter.

The vertico-mental diameter extends from the gnathion (the lowest point of the mandibular symphysis) to the most distant point on the vertex. This represents the diameter of engagement in a brow presentation. In this series, readings ranged from 12·3 to 14·4 cm. for males and from 12·3 to 14·8 cm. for females. The mean was 13·5 cm. for males and 13·3 cm. for females. The standard deviation was 0·47 cm. for males and 0·42 cm. for females, while the standard error of the mean was 0·043 cm. for males and 0·041 cm. for females.

Crown-Heel Length.

The crown-heel length was measured from the most posterior point of the posterior fontanelle to the heel of the infant. As this reading is taken routinely by the labour-ward staff, these landmarks obviate the need for a measuring board, although the resultant reading is slightly less accurate. In the present series the length varied from 19 to 23·5 in. for males and from 18·5 to 23·5 in. for females. The mean was 21·1 in. for males and 20·4 in. for females. The standard deviation was 1·07 in. for males and 0·93 in. for females, while the standard error of the mean was 0·096 in. for males and 0·087 in. for females.

Weight.

Weight readings varied from 97·75 to 163 oz. for males and from 96·25 to 156·75 oz. for females. The mean was 121·57 oz. for males and 118·67 oz. for females. The standard deviation was found to be 13·65 oz. for males and 12·66 oz. for females. The standard error of the mean was 1·262 and 1·18 oz. respectively. The weight as determined in this series was a highly variable reading and correlated relatively poorly with the cranial dimensions and the length of the baby.

Maternal Factors.

Maternal Age.

The mean age of the mothers represented in the present series was 25·56 years, the mode being 20 years; the standard deviation was 5·21 years, while the standard error of the mean was 0·337 years. The maternal ages ranged from 16 to 43 years.

Gestation Period.

The gestation period, calculated from the first day of the last menstrual period, was found to have a mean of 279·6 days — that is, the birth took place on the two-hundred-and-eightieth day. The standard deviation was 14·3 days. The standard error of the mean was 0·926 day, the gestation periods ranging from 228 to 317 days. The average length of pregnancy in the present series (280 days) is thus slightly shorter than the gestation period of 282·55 days determined by Dr. Harvey Sutton (1945). The probable explanation of this is Dr. Harvey Sutton's arbitrary rejection of cases in which the gestation period was greater than 313 days or less than 251 days.

TABLE II.

Frequency Distribution of Cranial Dimensions.

Centimetres.	Occipito-frontal Diameter.		Biparietal Diameter.		Bitemporal Diameter.		Suboccipito-bregmatic Diameter.		Submento-bregmatic Diameter.		Vertico-mental Diameter.		Maximum Head Circumference.	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
6·5– 6·6 ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—
6·7– 6·8 ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—
6·9– 7·0 ..	—	—	—	—	—	2	—	—	—	—	—	—	—	—
7·1– 7·2 ..	—	—	—	—	1	0	—	—	—	—	—	—	—	—
7·3– 7·4 ..	—	—	—	—	1	3	—	—	—	—	—	—	—	—
7·5– 7·6 ..	—	—	—	—	5	4	—	—	—	—	—	—	—	—
7·7– 7·8 ..	—	—	—	—	13	8	—	—	—	—	—	—	—	—
7·9– 8·0 ..	—	—	—	—	12	15	—	—	—	—	—	—	—	—
8·1– 8·2 ..	—	—	1	—	22	29	—	—	—	—	—	—	—	—
8·3– 8·4 ..	—	—	0	—	30	27	—	—	—	—	—	—	—	—
8·5– 8·6 ..	—	—	1	1	21	15	—	—	—	—	—	—	—	—
8·7– 8·8 ..	—	—	8	6	13	9	—	—	—	—	—	—	—	—
8·9– 9·0 ..	—	—	9	10	1	2	—	1	—	—	—	—	—	—
9·1– 9·2 ..	—	—	19	28	3	0	2	5	—	—	—	—	—	—
9·3– 9·4 ..	—	—	24	25	2	0	4	6	—	5	—	—	—	—
9·5– 9·6 ..	—	—	32	18	—	0	10	21	3	8	—	—	—	—
9·7– 9·8 ..	—	—	17	17	—	0	26	32	10	11	—	—	—	—
9·9–10·0 ..	—	—	7	9	—	1	28	22	19	19	—	—	—	—
10·1–10·2 ..	—	—	3	1	—	—	23	14	22	19	—	—	—	—
10·3–10·4 ..	—	—	3	—	—	—	17	12	16	20	—	—	—	—
10·5–10·6 ..	—	—	—	—	—	—	6	1	18	9	—	—	—	—
10·7–10·8 ..	2	2	—	—	—	—	8	1	14	6	—	—	—	—
10·9–11·0 ..	0	5	—	—	—	—	—	—	5	5	—	—	—	—
11·1–11·2 ..	7	13	—	—	—	—	—	—	5	1	—	—	—	—
11·3–11·4 ..	12	16	—	—	—	—	—	—	4	0	—	—	—	—
11·5–11·6 ..	21	25	—	—	—	—	—	—	1	1	—	—	—	—
11·7–11·8 ..	21	18	—	—	—	—	—	—	—	—	—	—	—	—
11·9–12·0 ..	19	13	—	—	—	—	—	—	—	—	—	—	—	—
12·1–12·2 ..	18	11	—	—	—	—	—	—	—	—	—	—	—	—
12·3–12·4 ..	13	7	—	—	—	—	—	—	—	—	1	1	—	—
12·5–12·6 ..	7	5	—	—	—	—	—	—	—	—	2	5	—	—
12·7–12·8 ..	3	—	—	—	—	—	—	—	—	—	10	11	—	—
12·9–13·0 ..	0	—	—	—	—	—	—	—	—	—	9	13	—	—
13·1–13·2 ..	0	—	—	—	—	—	—	—	—	—	10	20	—	—
13·3–13·4 ..	1	—	—	—	—	—	—	—	—	—	24	22	—	—
13·5–13·6 ..	—	—	—	—	—	—	—	—	—	—	16	16	—	—
13·7–13·8 ..	—	—	—	—	—	—	—	—	—	—	14	7	—	—
13·9–14·0 ..	—	—	—	—	—	—	—	—	—	—	12	6	—	—
14·1–14·2 ..	—	—	—	—	—	—	—	—	—	—	12	2	—	—
14·3–14·4 ..	—	—	—	—	—	—	—	—	—	—	7	1	—	—
14·5–14·6 ..	—	—	—	—	—	—	—	—	—	—	—	0	—	—
14·7–14·8 ..	—	—	—	—	—	—	—	—	—	—	—	1	—	—
14·9–15·0 ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—
31·7–32·0 ..	—	—	—	—	—	—	—	—	—	—	—	—	1	—
32·1–32·4 ..	—	—	—	—	—	—	—	—	—	—	—	—	0	4
32·5–32·8 ..	—	—	—	—	—	—	—	—	—	—	—	—	2	1
32·9–33·2 ..	—	—	—	—	—	—	—	—	—	—	—	—	6	12
33·3–33·6 ..	—	—	—	—	—	—	—	—	—	—	—	—	7	14
33·7–34·0 ..	—	—	—	—	—	—	—	—	—	—	—	—	7	15
34·1–34·4 ..	—	—	—	—	—	—	—	—	—	—	—	—	21	12
34·5–34·8 ..	—	—	—	—	—	—	—	—	—	—	—	—	15	15
34·9–35·2 ..	—	—	—	—	—	—	—	—	—	—	—	—	17	21
35·3–35·6 ..	—	—	—	—	—	—	—	—	—	—	—	—	16	7
35·7–36·0 ..	—	—	—	—	—	—	—	—	—	—	—	—	11	4
36·1–36·4 ..	—	—	—	—	—	—	—	—	—	—	—	—	8	6
36·5–36·8 ..	—	—	—	—	—	—	—	—	—	—	—	—	7	3
36·9–37·2 ..	—	—	—	—	—	—	—	—	—	—	—	—	3	1
37·3–37·6 ..	—	—	—	—	—	—	—	—	—	—	—	—	0	—
37·7–38·0 ..	—	—	—	—	—	—	—	—	—	—	—	—	1	—
38·1–38·4 ..	—	—	—	—	—	—	—	—	—	—	—	—	1	—
38·5–38·8 ..	—	—	—	—	—	—	—	—	—	—	—	—	1	—
38·9–39·2 ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total ..	124	115	124	115	124	115	124	115	117	104	117	105	124	115

Length of Labour.

For the purpose of analysis, determinations of the duration of labour were divided into two classes, primiparas and multiparas, and each class was ultimately subdivided into two further groups on the basis of the sex of the child, as it was desired not only to determine the influence of maternal parity on the duration of the first and second stages of labour, but also to ascertain whether the larger male baby was associated with an increased duration of labour when contrasted with his smaller sister. The results have been summarized in Table III.

First Stage of Labour.—Extending from the onset of labour pains to full dilatation of the cervix, the first stage of labour had an average duration of 749·8 minutes for primiparous women and 430·1 minutes for multiparous women. The standard deviation was 389·9 minutes for primiparas and 346·2 minutes for multiparas, while the standard error of the mean was 45·94 minutes and 26·85 minutes respectively. These results are in general agreement with those of Busby (1948), who found that the mean duration of labour was 13 hours for white primigravidas and eight hours for white multigravidas. An interesting feature illustrated by Table III is the difference in the duration of the first stage of labour between primiparous mothers with male and female babies respectively. The mean for males was 850·3 minutes, while that for females was 669·8 minutes, the observed difference being 180·5 minutes. Although the number of readings is small (32 males and 40 females) and the standard deviations are relatively large (383·4 minutes for males and 376·2 minutes for females), nevertheless the use of the "Student's" *t* test to assess the significance of this difference proved that a level of statistical probability (5%) had been reached. Of further interest is the absence of any significant difference in the duration of the first stage of labour between multiparous mothers with male and female babies, the means being 430·8 minutes for males and 429·1 minutes for females. It was initially thought that these observations could be explained by the larger male head delaying the effacement and dilatation of the primiparous in contrast to the multiparous ("ripe") cervix — a statement that

TABLE III.
Maternal Data.

	Maternal Age. (Years.)	Gestation Period. (Days.)	First Stage of Labour (Minutes).						Second Stage of Labour (Minutes).					
			Primiparas.			Multiparas.			Primiparas.			Multiparas.		
			Male Infants.	Female Infants.	Total.	Male Infants.	Female Infants.	Total.	Male Infants.	Female Infants.	Total.	Male Infants.	Female Infants.	Total.
Number of observations	239	238	32	40	72	92	74	166	32	40	72	92	74	166
Mean	25·6	279·6	850·3	669·8	749·8	430·8	429·1	430·1	50·9	52·6	51·7	14·8	14·1	14·6
Standard deviation	5·2	14·3	383·4	376·2	389·9	357·4	331·8	346·2	30·2	29·8	30·0	8·8	9·6	9·5
Standard error of mean	0·34	0·93	67·78	59·43	45·94	37·34	38·58	26·85	5·34	4·71	3·54	0·92	1·12	0·88
Coefficient of variance	20·38%	5·12%	45·09%	56·18%	51·99%	83·03%	77·32%	80·50%	59·29%	56·63%	57·99%	59·73%	68·23%	65·03%

is, of course, in contradiction to Professor Calkins' (1948) observation that the first stage of labour is no longer with large than with small babies. In order to determine whether increased cranial dimensions afforded an explanation of the longer first stage of labour in the case of primiparous mothers with male babies, a series was collected comprising all first babies (that is, those born to primiparous mothers) whose vertico-mental diameter exceeded the mean of 13·4 cm. (This diameter was chosen as it is a good index of head size and varies positively with the duration of labour, while the sub-occipito-bregmatic diameter tends to be reduced as labour proceeds and is thus an unsatisfactory index of cranial size.) The series described was divided into two groups, comprising 17 males and 16 females respectively, and the vertico-mental diameter and the duration of the first stage of labour were calculated for each of the two groups and compared. The mean of the vertico-mental diameters was 13·8 cm. for females and 13·9 cm. for males, the difference being insignificant, while the mean of the first stage of labour was 620 minutes for females and 1006 minutes for males; application of the "Student's" *t* test proved this difference to have a greater than 1% level of significance — that is, it was significant. Also it will be observed that in the case of the males this selected series of larger babies produced an increase of 155·7 minutes in the average duration of the first stage of labour (850·3 minutes for unselected male babies of primiparous mothers), while the mean in the case of females was 49·8 minutes less than the unselected series. This indicated that increased cranial dimensions were associated with increased duration of labour in the case of primiparous women with male babies, but not in the case of primiparas with female babies, therefore, quite apart from the size of the babies' heads, there was a further factor discriminating male from female babies, the nature of which is at present obscure, although the fact that this difference is noted only in primiparous women, in whom dilatation and effacement of the cervix is a slower and more difficult process, might well indicate a decreased cranial plasticity or capacity for head moulding in the case of the male child. However, this is purely conjecture — the problem requires further study and a larger series for its elucidation.

Second Stage of Labour.—The average duration of the second stage of labour was 51·74 minutes for primiparas and 14·55 minutes for multiparas, the standard deviation being 30·0 minutes for primiparas and 9·46 minutes for multiparas, while the standard error of the mean was 3·54 and 0·88 minutes respectively. These results are in apparent agreement with those of Hellmann and Prystowsky (1952), who found the median duration of the second stage of labour to be slightly less than 20 minutes for multiparas and slightly less than 50 minutes for primiparas. Attention is drawn to the absence of any significant difference betwen male and female infants in the duration of the second stage of labour.

Summary.

1. The cranial dimensions of the Australian baby as determined in the present series are in general agreement with the published results of overseas workers as recorded by Scammon and Calkins and by Erica Kugler.

2. The opportunity was taken to determine the mean age, gestation period and duration of labour of the women represented in the present series.

3. The determinations of the duration of the first and second stages of labour are in general agreement with the work of Busby and of Hellman and Prystowsky and illustrate the expected difference between primiparous and multiparous labours.

4. It was observed that the first stage of labour was longer in a primipara when her child was a male, then when it was a female. It appeared that quite apart from the size of the baby, there was a further factor affecting the duration of the first stage of labour which was related to the sex of the child, the nature of which is at present obscure; decreased capacity for head moulding in the case of the male child was invoked as a possible explanation.

5. The sex of the child appeared to bear no association with the duration of the second stage of labour.

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"NOVOCAIN" (H_3) IN GERIATRICS.

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AND

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EXTRAORDINARY claims have been put forward by Madame Aslan of Rumania regarding the effects of "Novocain" on the aging organism. Her claims are founded on the assumption that the intact molecule of "Novocain" possesses vitamin-like qualities manifested in the acceleration of the redox activity of tissue enzymes, and that when it is given in small doses it stimulates the multiplication of animal and plant cells (Aslan, 1957). This thesis has had a mixed reception.

In Eastern Europe Aslan's work has been hailed as a major contribution to gerontology (Eitner, 1959). In Great Britain not even her personal appearance could appease the scepticism created by the nature of her claims (Editorial, 1959). In West Germany and elsewhere on the Continent a less rigid attitude has prevailed. There her thesis has been subjected to a detailed analysis, and certain points have been discussed, which, although ignored by Aslan herself, nevertheless have appeared to bear out some of her claims and have merited further examination. Similar observations have been made by American workers, and almost identical practical conclusions have been drawn by the pharmacologists of both nations.

In this paper an attempt will be made to outline the recent use of Aslan's hypothesis, and to give our own impressions derived from our limited experience.

Method.

The Aslan treatment consists of a course of injections of a 2% "Novocain" solution, at a pH of 3·5 to 4·0 (commercial "Novocain" injections are issued at an acid pH as alkaline solutions are notably unstable), administered in doses of 5 ml. (0·1 gramme) three times a week for a period of four weeks. After an interval of 10 days the cycle is repeated, and such an intermittent course of injections is continued for an indefinite period of many months or even years. Before "Novocain" treatment is instituted, it is essential that the patient should be tested for possible intolerance or hypersensitivity. To achieve any beneficial effects, a minimum period of four months' treatment is insisted upon (Luth, 1959).

Procaine is said to have a favourable action on the following conditions: (i) arteriosclerosis; (ii) arthropathies and arthritis; (iii) circulatory diseases; (iv) metabolic disorders.

In the present investigation 30 patients were chosen with symptoms which, according to the indications set by Aslan, should have been relieved with "Novocain" treatment. Each patient suffered from symptoms produced by the triad of cerebral arteriosclerosis, arthropathies and circulatory diseases. Metabolic disorders were disgarded.

The patients were arranged in two groups according to the severity of their symptoms. In Group I 10 patients with mild symptoms were selected, and in Group II 20 patients with moderate to severe symptoms. Controls were not used, because it was found impossible to duplicate the complex symptomatology of each patient examined. As an alternative, the effectiveness of the treatment was measured by the regression or further deterioration in each case.

Response to Treatment.

By a response is meant: (i) an improved mental state with signs of euphoria and a feeling of well-being; (ii) an increase in weight (2 or 3 lb.); (iii) improvement in sleep with regard to rhythm and intensity; (iv) skin changes, especially a more highly-coloured complexion. Irrespective of the basic organic abnormality, which remained unaltered, these were the only responses obtained. As can be seen from Table I, most patients from the second group did not exhibit even these changes. Incidentally, these findings are also in keeping with results obtained by some other workers (Iuliani, Oriente and Rodriquez, 1959; Mora, 1960).

This course of treatment was continued for seven months unless interrupted by death or by discharge from hospital.

TABLE I.
Results of "Novocain" Therapy.

Subjects.	Response.	No Response.	Treatment Discontinued.[1]	Total Number of Patients.
Group I	9	1	0	10
Group II	4	10	6	20

[1] Treatment discontinued because of death or discharge from hospital.

Discussion.

Summarizing the results quoted by Aslan one can mention the reports about the renewed production of hormones, the regression of signs of senility in the skin, the stimulation of new hair growth, improved cardiovascular action and better muscle power (Leake, 1959). These phenomena Aslan attempted to explain as a result of experiments which she carried out on a 1% yeast suspension. She found that, on the addition of a 0·001% solution of "Novocain" at pH 4·0, the oxygen consumption of the suspension increased, but that it diminished when she increased the concentration of "Novocain" to between 0·01% and 1% (Aslan, 1957). She therefore deduced that "Novocain" acts by enhancing the oxygen utilization of tissue cells.

Reassessing the value of Aslan's hypothesis, Luth investigated the pharmacodynamic action of procaine

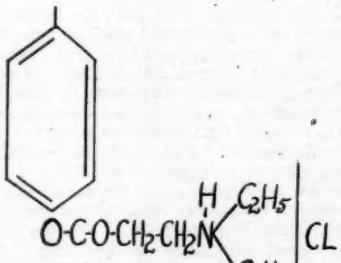

FIGURE I.
"Novocain."

(Luth, 1959). With regard to the administration of the intact molecule, he emphasizes the difference between large and small doses of "Novocain". In small doses, the drug produces an analgesic action, decreased capillary fragility and repolarization of tissues, whereas in larger doses it has a curare-like effect and suppresses the Bezold reflex.

The life of the "Novocain" molecule in the body is short, as it is rapidly hydrolysed into *p*-amino benzoic

acid (PABA) and diethylaminoethanol (DEAE). This is chiefly due to plasma pseudocholinesterase. Practically all the PABA formed is found in the urine within 24 hours, combined with glycine and glycuronic acid. About one-third of the DEAE formed appears in the urine within a day, the balance being destroyed in the body (Leake, 1959).

PABA has been also known as vitamin H_s; prompted by this nomenclature, Aslan introduced the term H_s for "Novocain" in its application to geriatrics. PABA is also incorporated in folic acid which contains, in addition, pteridine and glutamic acid. The important function of

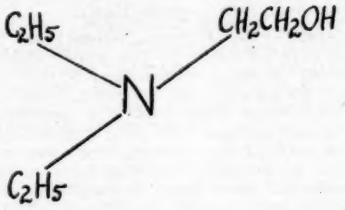

FIGURE II.
Diethylamineethanol.

folic acid derivatives is the synthesis of essential cell components. According to Russian sources, PABA increases the resistance of the body to oxygen lack (Leake, 1959).

Claims were made that repigmentation of the skin in vitiligo and of greying hair has been achieved by PABA. A beneficial action on various skin conditions has been mentioned by some authors. These reports were not supported by others (Goldsmith and Hellier, 1954). Effects on the central nervous system were reported by Lindner (Luth, 1959), but these claims need further confirmation, especially in view of the fact that PABA passes the blood-brain barrier very poorly.

Briefly, the pharmacological action of PABA does not seem to offer a satisfactory explanation of all the claimed geriatric actions of "Novocain".

The second product of "Novocain" hydrolysis is diethylaminoethanol.

This has the following pharmacological effects (Luth, 1959): (i) the dilatation of narrowed vessels, especially the coronary arteries; (ii) the production of mild hypotension; (iii) a quinidine-like action; (iv) a psychological effect, particularly mood stimulation.

These effects are similar to the alleged beneficial effects of "Novocain" administration. Similar but more marked effects, especially on the central nervous system, have been shown to follow dimethylaminoethanol administration. This substance has been assumed to be a precursor of acetylcholine (Pfeiffer, *et alii*, 1957). It has been demonstrated that, with increasing age, acetylcholine activity in humans decreases (Luth, 1959). Theoretically, anything which increases acetylcholine production in such persons should cause a return to more normal function in the nervous system and at the neuro-muscular junction (Lemerec and Lasater, 1958).

Figure III shows the consecutive terminal phases of a normal metabolic pathway from serine and glycine to acetylcholine. Because of the structural similarity, it is not unreasonable to assume that diethylaminoethanol, the metabolite of "Novocain", may enter this pathway and may then exert its effect by slightly increasing acetylcholine production. As yet there is no experimental evidence that this actually occurs (Luth, 1959).

Conclusions.

The present investigations confirmed very few of Aslan's claims. Whatever effects were observed were non-specific and of no great magnitude. Any central nervous system and muscle tone effects of "Novocain" administration could be the result of a slightly restored acetylcholine activity.

The importance of Aslan's investigation is that it has initiated research into drugs resembling diethylaminoethanol, some of which appear to have a stimulating effect on the central nervous system.

Summary.

1. Thirty geriatric patients were treated in accordance with Aslan's recommendations. No beneficial effects were noted in the seriously ill patients. In mild cases some non-specific response was seen, without the basic organic pathological processes being altered.

2. The possible pharmacodynamic actions of "Novocain" are discussed.

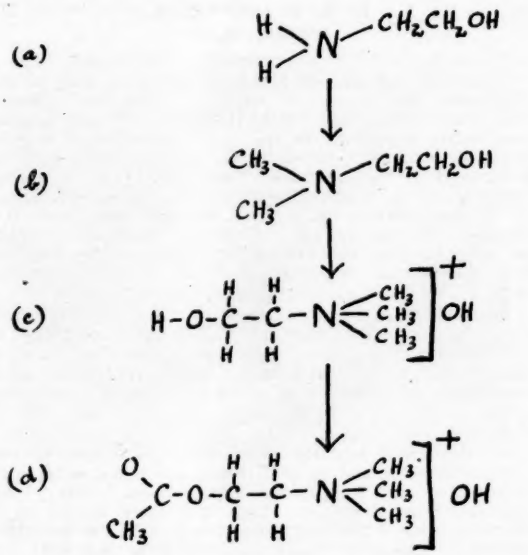

FIGURE III.

The terminal phases of a normal metabolic pathway from serine and glycine to acetylcholine. (*a*) aminoethanol; (*b*) dimethylaminoethanol; (*c*) choline; (*d*) acetylcholine.

Acknowledgements.

We are grateful to Dr. C. J. Cummins, the Director-General of Health, New South Wales, for permission to publish this paper. Our thanks are also due to Dr. G. S. Procopis, Medical Superintendent, Lidcombe State Hospital and Home, for supporting this investigation. We are indebted to Mr. E. Adnum for the drawing of diagrams, and to the nursing staff of the Lidcombe State Hospital and Home for their ready cooperation.

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Reports of Cases.

A CASE OF CARCINOIDOSIS.

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CARCINOID TUMOURS or argentaffinomas are now a well-recognized entity; A. J. Davies (1959) has collected 705 cases from the world literature. These tumours may occur anywhere in the gastro-intestinal tract, but are most commonly found in the terminal portion of the ileum and in the appendix. They are malignant, though slowly growing. Those occurring in the appendix appear to be less malignant than those elsewhere, and they arise at an earlier age. However, they are probably as malignant as the others, differing only in the fact that they cause symptoms earlier or are discovered incidentally during "interval" appendicectomy.

The cell from which the tumour arises, the argentaffin cell, was first described by Heidenhain in 1870. Its silver-staining property was discovered in 1914 by Masson. The tumour itself was given the name "carcinoid" by Obendorfer in 1907, but had been recognized as a histological entity as early as 1888 by Lubarsch.

An endocrine function was early postulated for the argentaffin cells, and in 1937-1940 a substance, enteramine (serotonin of Rappaport and others, 1948), was discovered by Erspamer. This was later shown to be identical with 5-hydroxytryptamine (5-HT), a vasoactive substance which is widely distributed in the body. Its breakdown product, 5-hydroxy-indole acetic acid (5-HIAA), is produced mainly in the lungs and is normally excreted in the urine (2 to 10 mg. per 24 hours).

Lembeck in 1953 found that it was possible to extract large quantities of 5-HT from argentaffinomas. The following year, Thorson and others described a syndrome characterized by vascular cutaneous flushing, hyperactivity of the bowel and valvular lesions affecting mainly the right side of the heart in a patient suffering from a metastasizing carcinoid tumour. The syndrome had apparently been described previously by Sir Maurice Cassidy at the Royal Society of Medicine in 1930, 1931 and 1933, without appreciation of its full pathological significance (two cases of carcinomatosis with flushing, in one of which pulmonary stenosis was found *post mortem*). Thorson suggested that 5-HT might be the cause of the symptoms. Since then many cases have been reported in the world literature. There are many methods of determining the urinary 5-HIAA concentration, the best and simplest screening test probably being that of Sjoerdsma, Weissbach and Udenfriend (1955).

In a search of Australian literature only one reference to the carcinoid syndrome could be found, though there were many reported cases of carcinoid tumour itself (Forbes, 1958).

Clinical Record.

Mrs. A., aged 63 years, visited her doctor on August 31, 1959, complaining of abdominal discomfort of five months' duration, and of loss of weight and increasing tiredness for the same period. She had noticed a lump in the upper part of the abdomen and flatulence for two months. On examination of the patient, a smooth, mobile, firm swelling extended from under the right costal margin and moved with respiration. There had been no alteration of the bowel habit. The tumour was thought to be a gall-bladder. A barium meal X-ray examination and cholecystogram revealed no abnormality; a sigmoidoscopic examination (Mr. Edward Wilson) also gave normal findings. The patient's admission to Sydney Hospital for laparotomy was arranged for October 12.

On October 9, rectal bleeding began. She was then found to be apparently well, though alarmed. There appeared to be two masses in her abdomen, the one described above and another in the right iliac fossa. A diagnosis of carcinoma of the ascending colon with hepatic metastases now seemed likely.

At laparotomy (Mr. Edward Wilson) on October 14, the findings were as follows. The upper abdominal mass was considered to be a metastasis in the liver, and a second liver metastasis was present about 1·5 cm. in diameter. Peritoneal fluid was not increased and the abdominal lymph glands did not appear enlarged. On the posterior wall of the caecum there was a hard mass about 2·5 cm. in diameter. It was fixed to neighbouring structures and not visualized. A diagnosis of carcinoma of the caecum with hepatic metastases was made and no further operative procedure was attempted. No obstruction from the fæcal mass was evident. Convalescence was uneventful, and the patient was discharged from hospital on October 30.

Subsequently she was examined on November 2, with the complaint of diarrhœa. This was treated symptomatically and easily controlled.

She was next examined by me on January 21, 1960, when she was found to be in much the same state of health as she had been on the first occasion on which I had seen her. This caused some surprise, as it was now nine months since symptoms had begun and three months since laparotomy. The masses were little larger, and apart from tiredness and abdominal discomfort after meals, she felt reasonably well, excepting that a fresh symptom had appeared — that of hot flushes, which were brought on by food and cold and also by a slight alcoholic indulgence at Christmas time. Dusky cyanosis of the cheeks was noted, and numerous telangiectases were also present. These fresh symptoms had been present (but not mentioned by her) for five months, and together with the slowness of the growth suggested the diagnosis of carcinoid with 5-HT "intoxication". Consequently estimation of 5-HIAA was carried out at the St. George Hospital, and it was found to be present in significantly increased amounts on two separate occasions against 20 normal controls.

The patient was last examined on March 1, 1961, two years after symptoms had begun and 17 months after her operation. She is still able to get up and about and do her household work. Abdominal discomfort is still present, but not excessive. She has lost no further weight and has had no diarrhœa, but does complain of embarrassingly loud borborygmi. The epigastric mass was then about 4 in. across, but the swelling in the right iliac fossa, never very obvious, seemed no larger. The heart sounds were normal, and examination of the chest showed a slight expiratory wheeze only. On a recent occasion her right middle and ring fingers had become blanched for a short time.

Discussion.

The diagnosis would appear to be reasonably certain in spite of the absence of histological confirmation. Bleeding is an unusual feature of these tumours, but in this case has occurred on only one occasion. This may have been due to a partial intussusception which corrected itself. Slow growth of the tumour, cutaneous flushing, facial cyanosis and borborygmi are all typical components of the syndrome, and are confirmed by the positive result of the urinary 5-HIAA test.

One instructive feature of this case was demonstrated when the patient managed to find out that she had an

inoperable cancer. This caused a severe setback, in that she became hopelessly despondent and all but confined to bed. The subsequent reassurance that her condition was vastly different from the usual type of cancer and that patients had been known to live as long as 20 years did much to restore her to her normal physical and mental state. This provides a practical reason for the recognition of the true pathological diagnosis in these cases, which often appears to be merely of academic interest.

Finally, emphasis must be placed on the necessity for the wide excision of these tumours when they are found in the operable stage.

Acknowledgements.

I wish to thank Mr. Edward Wilson for permission to report this case and for help in the preparation of this paper, and also Dr. R. G. Horsley and Dr. A. E. Gatenby of the St. George Hospital, Kogarah, for the performance of the biochemical tests.

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HERPES SIMPLEX OF THE FINGERS.

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HERPETIC infection of the fingers as a form of cross-infection in hospital practice was described recently by Stern *et alii* (1959), and when a child presented himself with vesicles on the fingers which conformed to their description he was considered worthy of investigation.

Clinical Record.

On March 12, 1960, A., a boy, aged two years and 10 months, developed vesicles on his lower lip, and a fever. The following day discrete blisters appeared on the middle digit of his left hand, and these were followed the next day by blisters on the thumb and index finger of the same hand. When he was examined on March 16, these discrete blisters had coalesced to form tense vesicular areas on the dorsa of the distal segments of the thumb and first two fingers. They extended proximally and laterally from the nail bases, were opalescent and were surrounded by a narrow area of erythema. There was neither fever nor lymphadenopathy. There were also vesicles, ulcers and crusts about his lower lip. The finger lesions were dabbed with calamine lotion containing Burow's lotion (5%) and protected by bandages. They were dry after one week and healed after two weeks.

FIGURE I.

The child's past history was told by his mother. He had been a normal infant until the age of five months when he developed a rash on his face which extended from the hair line and stretched under the chin. It was diagnosed by his doctor as infantile eczema. This rash later became red and purulent, causing him to be ill with a fever, and he was admitted to hospital, where a *Staphylococcus aureus* was isolated from the affected area. Since this sickness sixpenny-sized patches of small vesicles have appeared recurrently on his face. They dry and form scales, and the skin reverts to normal in about 10 days. These lesions bear no time relation to the lip lesions, which he has suffered at intervals of about six weeks since the age of nine months. In October, 1959, he had vesicles on the right thumb and index finger which his mother thought were similar to those on his left fingers. She could not remember whether he had vesicles on his lips at the time. He had been given diphtheria-pertussis antigen at the ages of three, four and five months. He had never received any corticosteroids. His mother, father and four siblings have not suffered any herpetic lesions, and no direct contact with herpes is known. Seven days before the onset of the finger lesions in March he had been treated with ephedrine, phenobarbitone and penicillin V by mouth for "a cold in the nose" and bronchitis.

Virus Isolation.

The large vesicles on the fingers were punctured with a sterile needle, and the viscous, purulent fluid was collected with a Pasteur pipette. This material was inoculated onto the chorio-allantoic membranes of four eleven-day-old embryonated hen eggs. After 72 hours' incubation the membranes were removed, and examination showed small white discrete pocks typical of those produced by herpes simplex virus. The vesicle fluid was also

inoculated into two monkey kidney tissue cultures. After incubation for five days these cultures showed cytopathic degeneration. Intranuclear inclusion bodies were apparent in the cells, and the picture resembled that produced by standard strains of herpes simplex virus.

Serological Identification of the Virus.

The monkey kidney cultures were frozen and thawed once and centrifuged. The supernatant fluid, diluted 1/10, was mixed with an equal volume of herpes simplex hyperimmune guinea-pig serum and incubated for one hour at 37° C., and 0·2 ml. of this mixture was introduced into two further monkey kidney tissue cultures. Supernatant fluid mixed with an equal volume of Hanks's balanced salt solution and treated in a similar manner provided positive controls.

After four days' incubation, the positive controls showed complete degeneration, but the cultures containing the virus-hyperimmune serum mixture remained unchanged. No bacteria were isolated from the vesicle fluid.

Discussion.

We were interested by the unusual site of these herpes simplex vesicles and their appearance, which might well have led to the diagnosis of a bacterial infection.

No attempt was made to carry out antibody studies, but the history suggests that this child was suffering from "recurrent" herpes simplex appearing for the first time on the left hand, having previously affected the right hand and lips. These lesions were very similar to the primary finger infections described by Stern *et alii* (1959).

We should like to draw attention to the rapid resolution of these lesions with simple, protective treatment.

Summary.

Vesicular lesions on the fingers of a child and the isolation from them of herpes simplex virus are described. Their similarity to bacterial lesions is noted.

Acknowledgement.

Thanks are due to the Director-General of Public Health, New South Wales, for permission to publish this case.

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Reviews.

The Doctor and the Minister: A Discussion of Medical-Clerical Co-operation for the Good of the Sick. 1960. Sydney: Australian Council of Churches. 8½" x 5½", pp. 40. Price: 6s.

This little book contains five papers presented at a Clergy-Doctor Group Consultation held last year under the auspices of the Australian Council of Churches. After an introductory paper on the ministry of reconciliation, complementary papers by a clergyman and a doctor respectively deal with the education, first, of the clergy in their role in the care of the sick and, second, of doctors in their role in relation to the spiritual needs of patients. The remaining two papers consider the role of the chaplain in the general hospital and in the mental hospital. In each case a great deal of constructive thought and experience lies behind the material presented, and the book warrants the serious consideration of those who appreciate the needs of the patient as a whole man, of those who are interested in the development of medical-clerical relations and especially of those who are concerned with the over-all training of medical and theological students. The book is attractively printed and bound and is reasonably priced.

The Pocket Prescriber and Guide to Prescription Writing. By Alistair G. Cruickshank, F.R.C.P.E.; Seventeenth edition; 1960. Edinburgh, London: E. & S. Livingstone Ltd. 4" x 2¾", pp. 316. Price: 6s.

It would be intriguing as well as instructive to read the first edition of "Pocket Prescriber", published in 1882. The seventeenth edition is completely up to date, and offers a comprehensive reference book for a limited field of therapeutics.

Tried and tested prescriptions for all ailments known to man are contained herein, with helpful hints to the practitioner on incompatibilities, both pharmacological and physiological. In addition are given specimen diets, posological tables compiled from the British Pharmacopœia, immunization schedules, incubation periods, poisons and their antidotes, as well as conversion tables and Latin abbreviations. Separate sections are devoted to antibiotics and vitamins, reflecting the place of these in the modern practitioner's armamentarium.

Naturally, when reference is made to the National Health Scheme, one must be on guard, the National Formulary prescriptions being unacceptable as benfits in Australia. The *Dangerous Drug Act* also is not identical in England and Australia.

Most of the proprietary preparations described are available in this country, but in this field also caution is needed in the use of this book. It may be of great help to the younger doctor as a pocket reference, provided he is aware of its limitations.

A Short Synopsis of Human Protozoology and Helminthology. By L. R. S. Macfarlane, O.B.E., M.D., M.A., D.P.H., illustrated by R. M. Leach, B.E.M.; 1960. Edinburgh and London: E. & S. Livingstone Ltd. 8½" x 5½", pp. 260, with 61 illustrations. Price: 35s. (English).

In the preface of this book, the author, who is Professor of Pathology at the Royal Army Medical College, London, disarmingly states that it is based on his notes used to prepare students for the Diploma of Tropical Medicine and Hygiene, and that, as they have had "some modest success", he thinks it will be useful to other students and to routine clinical pathologists. It is certain that any candidate who assimilated all the information compressed into this little book should be assured of more than modest success; but, nevertheless, there are many disappointing features.

The section on malaria contains some confusing statements, which may have crept in during the compression of lecture notes. For example, a student may be led to believe that gametocytes are extracellular in the peripheral circulation, and that it is uncertain whether they can develop from erythrocytic schizonts. Also, there has been no argument about the correct generic name for the pathogenic amœba of man since the International Commission on Zoological Nomenclature validated *Entamœba* in 1954 (Opinion 312). Similarly, no zoologist would agree with the statement in the introduction that cestodes are sexless and therefore the least developed of the helminths. Perhaps the author meant to write "gutless" for this complex and highly specialized group.

The book is clearly printed, with well-defined headings which make it easy to refer to the sections. Most of the subjects are dealt with under the following headings: "Distribution", "Morphology and Life Cycle", "Epidemiology", "Pathology", "Symptoms", "Diagnosis", and "Treatment". There is a useful glossary. Scientific names are only occasionally printed in italics. There has been too much compression in parts, and rarer organisms are dealt with so briefly that a routine pathologist would need to refer to one of the more comprehensive textbooks in order to identify them. Concentration techniques for amœbic cysts and helminth ova in fæces are not mentioned in the short appendix on laboratory techniques. All in all, this book cannot be recommended to replace any of the standard textbooks already available.

Shapes of Sanity: A Study in the Therapeutic Use of Modelling in the Waking and Hypnotic State. By Ainslie Meares, M.D., B.Agr.Sc., D.P.M.; 1960. Springfield, Illinois: Charles C. Thomas, Publishers. 9" x 5¾", pp. 480, with 191 illustrations. Price: £5 8s. (English).

This book is complementary to Ainslie Meares' previous studies on hypnography and spontaneous painting. The use of a plastic medium is described, not in the role of occupational therapy using occupation for a diversion, but as an aid to diagnosis, the end result being more efficient treatment.

The first portion of the book deals with plastotherapy, a word coined for the employment of slow-setting plaster of Paris which contains powdered asbestos. Its virtue lies in freedom from distortion, and a permanence which permits storing for future reference. The patient is introduced to the use of the plastic medium with tact. Thus:

You know there are all sorts of different ways in which we can express ourselves. We can use words, but we also express ourselves by our gestures, by the expression on the face, or by the way we do things. You can express yourself by what you make. There are all sorts of ways of expressing ourselves. You can express yourself in modelling. That is why we use this clay. You see it goes into shapes in your fingers. You make things. Remember this is not art. It is just a way of expressing yourself. It is a way of expressing yourself without words. It does not matter what it is that comes. It is quite easy. You just let yourself go, and you find you are making something. I will leave you for a little while. Then I will come back and see what you have made.

No less than 189 examples of modelling are illustrated. Each is accompanied by a brief case history. The models vary from formless blobs to figures of artistry. Approximately half of the models have a sexual content. Males commonly model breasts, women model a penis. Some models express abstract ideas, as in a ship which showed a boy's urge to travel. It is stated that frequently patients reveal their problems more quickly by this means than in speech. The psychiatrist is enabled to outwit the defences of repression. The approach speeds up psychotherapy through the early acquirements of insight.

"Hypnoplasty", which is the application of plastotherapy in the hypnotic state, is stated to be extremely rewarding. Dr. Meares states that the hypnotized subject does not talk readily, but relies on his behaviour. He uses his hands and expresses himself in plastic.

The author is to be congratulated on a work which sets out the difficulties and rewards of a new approach in therapy in legible type and with a wealth of photographs. Obviously such a technique has not universal application, but it is worth consideration in those cases—and there are many—in which the avenue of speech is blocked by conflict or repression.

A Primer of Medicine: Being an Introduction to Clinical Neurology, Alimentary, Respiratory and Cardiovascular Diseases. By M. H. Papworth, M.D., M.R.C.P.; 1960. London: Butterworth & Co. Ltd. 8" × 5¼", pp. 260. Price: 46s. 6d.

THIS book illustrates the difficulty of writing a book for use by both medical students and post-graduate students, for although, as the author points out, it is impossible to be a good clinician without possessing a large store of facts, many of the points mentioned as being of importance in differential diagnosis demand an understanding of pathology not often found in students in their first clinical year.

Although the author states that a good history often gives the important clues to the correct assessment of physical signs, the section on history-taking is cursory, occupying only two pages. Each chapter contains sections on physical signs, followed by a brief account of the diagnostic criteria for some diseases. The sections on physical signs, although in general well written, contain some surprising statements. For example, few physicians share Dr. Papworth's capacity to estimate the systolic pressure to within 10 mm. of mercury by feeling the pulse, and few will agree with his views about triple rhythm.

A more important defect of the book is the lack of emphasis placed on the more important causes of various clinical signs. For example, few examiners would feel well disposed towards a candidate who, while mentioning emphysema as a cause of papilloedema, made no mention of high blood pressure. The sections on jaundice and diseases of the kidney are misleading. The section on neurology is the best part of the book, being concise and for the most part accurate.

In general the book will be appreciated by those who require a rapid revision of medicine before sitting for a clinical undergraduate or post-graduate examination. It is unlikely to assist the more junior student to any important degree.

Nutritional Evaluation of Food Processing. Edited by Robert S. Harris and Harry von Loescke; 1960. New York: John Wiley and Sons Inc. 9" × 5¾", pp. 630, with illustrations. Price: $12.00.

THIS book covers all treatments of foodstuffs, particularly commercial, from place of origin to point of consumption, or, as it is put in the preface, "the nutritional effects of the processing of foods as they proceed from garden to gullet". Practically every phase of processing of every kind of food and of the effect on the nutritional value of the foods is dealt with. Articles, some very short, some long, have been contributed by 33 different specialists in the various aspects of processing. The result is a book, which, in its 612 pages, contains a great deal of information making interesting reading, although it is not a book which is likely to be read right through at a sitting. Commercial food processors will find much to interest and instruct them in the many sections into which the book is divided. For the medical man it would be useful as a source of specialized information in a library, for at $12 it is not likely that many medical men would buy it.

Hypertension, Volume VIII: Renal, Electrolyte and Autonomic Factors. Proceedings of the Council for High Blood Pressure Research, American Heart Association, November, 1959. Edited by Floyd R. Skelton, M.D., Ph.D.; 1960. New York: American Heart Association. 8¾" × 6", pp. 152, with tables. Price not stated.

THIS volume consists of six papers delivered by experts in the field of cardiology at a meeting of the Council for High Blood Pressure Research of the American Heart Association. Each paper is followed by a verbatim report of the group discussion which arose from the reading.

The presentation of this information is, as may be expected, extremely attractive, with many graphs and diagrams and coplous references. A regrettable omission, however, is an index.

A paper on the juxtaglomerular apparatus in its relation to experimental hypertension begins the series. This is followed by a discussion of the renal medulla and renoprival hypertension. Then comes an assessment of vasoconstrictor and vasopressor activity in the renal vein plasma of hypertensive patients; this leads on to the role of the sodium ion in smooth-muscle contraction. The function of small and large peripheral vessels and the regulation of function in the innervated heart complete the subjects under discussion.

A vast amount of physiological laboratory experimentation is recorded, which represents high-grade research from universities all over the United States of America.

The Heinz Handbook of Nutrition: A Comprehensive Treatise on Nutrition in Health and Disease. Published for H. J. Heinz Company. London, New York and Toronto: McGraw-Hill Book Company Inc. 9" × 5¾", pp. 452. Price: $5.75.

SEVERAL BOOKS on human nutrition have appeared in the past few months, the latest being "The Heinz Handbook of Nutrition". This was apparently put together by B. T. Burton, Staff Consultant in Nutrition to the H. J. Heinz Company, with the assistance of an editorial board consisting of six of the leading authorities on human nutrition in the United States. The first half of the book consists of a good general account of the utilization of foods, the food elements and nutrition in health. This deals with the physiology of digestion and absorption and the nature of proteins, fats, carbohydrates, vitamins and minerals, and presents a discussion on nutrition in infancy, childhood, adult age and old age.

All this is very well done, and a good balanced account is given. The influence of the editors can be seen in the careful weighing of evidence in controversial subjects, such as utilization of fats and saturated and unsaturated fats.

The second half of the book deals with nutrition in disease, and a very wide range of diseases is treated. Sample menus are given for each of the diseases discussed; but these follow the high-class American-pattern meals with six or more items in each meal, and are not at all acceptable for Australian tastes. However, the discussions on the type of meals in each disease are useful. In most respects this is a first-class account of human nutrition in health and disease. There is an immense amount of information in the book, but it is not easy to read—too many cooks spoil the broth.

The Modern Treatment of Asthma: With Special Reference to Gold Therapy. By L. Banszky, M.D. (Berlin), L.M.S.S.A. (London); second edition, 1959. Bristol: John Wright & Sons Ltd. 7¼" × 4¾", pp. 188. Price: 21s.

ALMOST one third of the second edition of this work is devoted to a discussion of gold therapy, of which the author is a tireless advocate. This section, indeed, being the *raison d'être* of the book, has been extensively revised in order to incorporate the results of experience gained in the years since the publication of the first edition.

The case for gold treatment is carefully put in a discussion of the ætiology of asthma. The effects of age, sex, climate, altitude, air pollution, smoking, allergy, heredity and the psyche are all evaluated, and anyone who has heard the tale of the allergic horse and the psychological rabbit in the adulterated rabbit pies will have no doubts about the author's opinion of the role of the psyche in the production of the disease.

The view held by him is that allergy in asthma is frequently secondary to tuberculosis and other "serious infection", which decreases the efficiency of the adrenal cortex. This cortex, when functioning normally, reduces the level of antigen-antibody reaction in the body and therefore reduces the level of intrinsic histamine upon which the asthmatic attack depends. Antibody is liberated largely in the cells of the reticulo-endothelial system, and since gold salts have an affinity for these cells, they interrupt the production of antibody for the duration of their combination in the body.

Other treatments are discussed, including the more unusual ones such as histamine ionization, together with their indications and dangers.

References from 1682 to 1957 are given in the extensive bibliography to this most comprehensive account of the modern treatment.

From Girlhood to Womanhood. By Albert Sharman, M.D., D.Sc., F.R.C.O.G.; 1960. Edinburgh and London: E. & S. Livingstone Ltd. 7¼" × 4¾", pp. 80. Price: 6s. net (English).

IT is as well for the medical practitioner to be aware of the best sex education literature, for he is frequently asked to recommend books of this kind for his patients. With the enormous number of such publications available, he can make a very careful selection, and this little book will be found useful for a special kind of person—an extremely intelligent and inquiring young woman or teenage girl.

Sub-titled "Things My Mother Never Taught Me", it was written "to take the fear away from girls and to try to take embarrassment away from their mothers". One can easily understand this fear and embarrassment when one considers the social taboos that survive and colour modern life, dating from Aristotle (who, as we learn here, taught that if a menstruating woman looked into a mirror it would lose its lustre and throw a curse on the next person who gazed into it).

There is a wealth of information, both technical and general, contained herein, with statistics and medical terminology that may make it heavy going for many daughters; and, being designed exclusively for females, it unfortunately omits to mention male sexuality except in euphemistic terms. It also presupposes a theoretical knowledge of intercourse, which is surprising, for surely it is precisely this topic which causes most of the embarrassment to mother and daughter alike.

Menstrual hygiene, marriage, pregnancy, lactation, abortion and sterility are dealt with, and while the author fairly puts the case for chastity and marriage and emphasizes the dangers of abortion, he never once deserts the lecture platform for the pulpit. His task has been to inform rather than to preach.

Ciba Foundation Colloquia on Ageing, Volume 5, The Lifespan of Animals. Edited by G. E. W. Wolstenholme, O.B.E., M.A., M.B., M.R.C.P., and Maeve O'Connor, B.A., 1959. London: J. & A. Churchill Limited. 8" × 5", pp. 382, with 58 illustrations. Price: 48s.

EARLY in 1954, the trustees of the Ciba Foundation designated funds over a period of five years for the encouragement of basic research relevant to the problems of aging. Colloquia have been held each year since then on various aspects of aging. The proceedings of the fifth colloquium have now been published. This deals with the lifespan of animals. A representative group of 21 experts on various aspects of the subject from Europe and America met in London in April, 1959; fifteen papers were presented, and each was followed by discussion. The papers are of the usual high standard of Ciba colloquia, and the discussions are, as usual, even more interesting and instructive than the papers. The field covered is very wide, and there are papers on aging in man, horses, cattle, rats, birds, fish and insects. Interesting papers, not too technical, are on parental age effects on man, and on the relation of lifespan to brain weight and body weight in mammals. Most of the papers are highly technical. The one thing that becomes obvious in reading these addresses is that nobody yet knows what is the cause of senescence or why some animals live so much longer than others. As J. Maynard Smith puts it: "To a geneticist, the oddest feature of gerontology is the absence of a coherent and generally accepted theory of ageing, comparable to the chromosome theory of heredity."

This is a very interesting book.

Books Received.

[The mention of a book in this column does not imply that no review will appear in a subsequent issue.]

"Epidemiology of Cardiovascular Diseases: Methodology: Hypertension and Arteriosclerosis", edited by Herbert Pollack, M.D., and Dean E. Krueger; Report of Conference, Princeton, New Jersey, April 24-26, 1959: Supplement to *American Journal of Public Health and the Nation's Health*, Volume 50, No. 10; 1960: American Public Health Association, Inc. 9¾" × 6¾", pp. 128. Price: $1.

"Fundamentals of Psychology: The Psychology of Thinking", edited by Ernest Harms; *Annals of the New York Academy of Sciences*, Volume 91, Art. 1, December 23, 1960. New York: New York Academy of Sciences. 9" × 6", pp. 1-158. Price: Not stated.

"Thermodynamics and Mechanics of Polymer Systems", edited by F. R. Eirich; *Annals of the New York Academy of Sciences*, Volume 89, Art. 4, January 16, 1961. New York: New York Academy of Sciences. 9" × 6", pp. 573-714, with illustrations. Price: Not stated.

"Dietary Proteins in Health and Disease", by James B. Allison, Ph.D., and William H. Fitzpatrick, Ph.D.; 1960. Springfield, Illinois: Charles C. Thomas, and Oxford: Blackwell Scientific Publications Ltd. 9" × 6", pp. 96. Price: 36s. (English).

"The Chemistry of Thyroid Disease", by Rosalind Pitt-Rivers, M.Sc., Ph.D. (London), F.R.S., and Jamshed R. Tata, M.Sc. (Bangalore), Docteur ès Sciences (Paris); 1960. Springfield, Illinois: Charles C. Thomas; Oxford: Blackwell Scientific Publications Ltd. 9" × 6", pp. 96, with figures. Price: 36s. (English).

"Treatment of Emotional Problems in Office Practice", by Frank F. Tallman, M.D.; 1961. New York, Toronto, London: McGraw-Hill Book Company, Inc. 8" × 5¼", pp. 446. Price: $11.00.

"The Psychological Report: Use and Communication of Psychological Findings", by Walter G. Klopfer, Ph.D., and Leopold Bellak, M.D.; 1960. New York and London: Grune and Stratton Inc. 8¼" × 5¼", pp. 156, with Illustrations. Price: $4.50.

"The Physiological Basis of Medical Practice", by Charles Herbert Best, C.B.E., M.A., M.D., D.Sc. (Lond.), F.R.C.S., F.R.C.S., F.R.C.P. (Canada), and Norman Bourke Taylor, V.D., M.D., F.R.S. (Canada), F.R.C.S. (Edin.), F.R.C.P. (Canada), M.A.C.S. (Eng.), L.R.C.P. (Lond.); seventh edition; 1961. Baltimore: The Williams and Wilkins Company. 10" × 6¾", pp. 1572 with many illustrations. Price: £8 16s.

"Orthopædics", by G. Perkins, M.C., M.Ch., F.R.C.S.; 1961. London: The Athlone Press. 9¼" × 6", pp. 990, with many illustrations. Price: £6 6s. net (English).

"Techniques of Thoracotomy", by B. T. Le Roux, M.B., Ch.B., F.R.C.S.E.; 1961. Edinburgh and London: E. & S. Livingstone Ltd. 9¾" × 7", pp. 84, with many illustrations. Price: 55s. net (English).

"Clinical Neurology", by Sir Russell Brain, D.M., F.R.C.P. (Lond.); 1960. London: Oxford University Press. 9¼" × 6½", pp. 406, with illustrations. Price: 63s.

"Textbook of Medicine", by various authors, edited by Sir John Conybeare, K.B.E., M.C., D.M. (Oxon.), F.R.C.P., and W. N. Mann, M.D. (Lond.), F.R.C.P.; thirteenth edition; 1961. Edinburgh and London: E. & S. Livingstone Ltd. 9¼" × 6½", pp. 1004, with a few illustrations. Price: 45s. net (English).

"Air Pollution", by various authors, World Health Organization Monograph Series, No. 46; 1961. Geneva: World Health Organization. 9½" × 6¼", pp. 442 with illustrations. Price: £2.

"Leucemie Basofile", by Nevio Quattrin, Enrico Dini and Emmanuele Palumbo; 1959. Pisa: Omnia Medica Publications. 9¾" × 6¾", pp. 234, with illustrations. Price not stated.

"Miscellaneous Notes" (Tenth Series), by F. Parkes Weber. London: H. K. Lewis & Co. Ltd.; 1961. 7¼" × 4¾", pp. 7. Price: 2s. 6d. net (English).

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DOCTOR-CLERGY RELATIONS.

PRACTITIONERS in the fields of medicine and of religion have at times in history been fused into one and at others set poles apart. However, they have always had this in common, that they were concerned on a personal level with people in need. And no matter how much the one group might differ from the other in outlook and approach, the individual with whom both are concerned has often felt the need for the help of both at the same time. Inevitably then they have been brought together and often have become aware of the considerable extent to which their respective roles overlap in caring for the total needs of the patient. This has sometimes resulted, especially in smaller, self-contained communities, in a working partnership of considerable effectiveness, whether or not there was complete sympathy in outlook. On a broader level, however, that of involving the two groups as groups in cooperation as a principle, little has been done until recent years, when much intelligent and constructive thought has been brought to bear on the subject on both sides.

A statement on "Medicine and the Church" approved by the Council of the B.M.A. in London and issued in 1947[1] concluded with these words:

> Health is more than a physical problem, and the patient's attitude both to illness and to other problems is an important factor in his recovery and adjustment to life. Negative forces such as fear, resentment, jealousy, indulgence and carelessness play no small part in the level of both personal and national health. For these reasons we welcome opportunities for discussion and co-operation in the future between qualified medical practitioners and all who have a concern for the religious needs of their patients.

The statement, which had been drawn up as a result of discussion between the Central Ethical Committee of the B.M.A. and a deputation from the Churches' Council of Healing, and subsequently the Medical Advisory Committee of the Churches' Council, was particularly concerned with the ethical aspects of the subject. It went on to say that it had become clear that there existed a field for legitimate and valuable cooperation between clergy and doctors in general, and between the Churches' Council of Healing and the Association in particular. It then made the comment:

> The Council of the B.M.A. is of opinion that there is no ethical reason to prevent medical practitioners from co-operating with clergy in all cases and more especially those in which the doctor in charge of the patient thinks that religious administrations will conduce to health and peace of mind or lead to recovery. Such co-operation is often necessary and desirable, and would help to prevent abuses which have arisen through the activities of irresponsible and unqualified persons.

It was pointed out that a central liaison had been established by the appointment of representatives of the Association to attend meetings of the Churches' Council and *ex officio* to serve on its Medical Advisory Committee. It was considered that most useful work might be done by close personal contact between doctor and clergyman, with an interchange of views and active cooperation where possible. With regard to the cooperation which could be secured at a divisional or parochial level, it was considered that arrangements could best be left to the B.M.A. divisions acting in concert with any branch organization of the Churches' Council or similar body. Joint activities might include the appointment of and cooperation with hospital chaplains and their deputies, education of the public and informal discussions between doctors and the clergy. The statement then went on to say that, in addition to the suggestions which had been made and which in some measure had already been the custom of doctors and clergy in different parts of the country, it would seem desirable that the whole field of medical practice in relation to the work of the church should be explored. Moral aspects in the cause, treatment and prevention of disease could not be overlooked, and in that field also it was desirable that there should be fuller cooperation. Medicine and the Church working together should encourage a dynamic philosophy of health which would enable every citizen to find a way of life based on moral principles and on a sound knowledge of the factors which promoted health and well-being.

In 1956 in a memorandum of evidence[2] submitted by a special committee of the Council of the B.M.A. to the Archbishop's Commission on Divine Healing, the question of cooperation between doctors and clergy was again considered. In a conservative but nonetheless sympathetic statement it was pointed out that recent progress in medicine had shown that physical health depended on more than physical agents. It was influenced greatly by environment, human relations, personal emotional factors and so on. In illness those might well affect the patient to a greater extent, and consequently the patient required more than physical care. Teamwork between doctor and clergyman could help to meet the total needs of the patient. The committee was alive to the difficulties involved in such cooperation, arising from the factors present on one side or the other, and reached the important conclusion that cooperation between doctors and clergy must always rest on personal knowledge and mutual respect. It referred to the cooperation existing not only between individual doctors and clergy but within various groups in local sectors, and to the occasional joint meetings arranged for clergy and doctors by B.M.A. divisions in their own localities.

Looking for ways in which the cooperation might be extended, the committee expressed the view that the

[1] *Brit. med. J., Supplement*, 1947, 2:112 (November 8).

[2] "Divine Healing and Co-Operation between Doctors and Clergy", British Medical Association, London, 1956.

purpose of cooperation between the doctor and the clergyman could also be brought before medical and theological students by means of lectures and discussions. At present, the Committee pointed out, it seemed that the question of cooperation was rarely considered—if indeed it was considered at all—until the doctor and the parson were launched on their careers. That was to be regretted, for the work of the doctor and that of the parson were bound to overlap. If that were made clear to students, cooperation, with considerable benefit to patients, would be established later as a matter of course rather than as an exceptional measure. Referring to the importance of the spiritual factor in rehabilitation, the committee said that doctors whose patients were attending rehabilitation centres and units might well cooperate with the clergy during the critical stage of return to active life. Clergy might in particular have a valuable contribution to make in regard to resettlement. Another important sphere of activity was related to hospital chaplains, and the committee gave it as its opinion that all reasonable facilities should be given to hospital chaplains of all denominations to administer to the spiritual needs of hospital patients. Hospital authorities should be encouraged to see that chaplains were made welcome and their visits recognized as part of ward life.

Referring to ethical considerations, and more particularly to the question of association with unregistered practitioners, which was forbidden by the General Medical Council, the committee was reassuring, with certain qualifications. It said that if the clergy, or other healers, restricted their activities to the forms of ministration that had long been associated with the Church, and if they regarded their sphere of usefulness as that pertaining solely to the spiritual life of the patient, objection need not be taken by registered medical practitioners to that form of intervention at the request of the patient. Such an arrangement could not be considered as one in which the healer was covered unethically, or illegally, by the attending medical practitioner. The former would be regarded as ministering to the religious life of the patient, whilst the latter would be regarded as ministering to the physical needs of the patient. That those two ministrations had contact was well recognized and, indeed, that they might overlap was often conceded. It would, however, be a denial of the real facts of the situation if the spiritual healer was regarded as a medical auxiliary. Most registered medical practitioners would say that they were wholly unable to direct, or supervise, the professional work of a spiritual healer. They could, however, and often did reach the conclusion that the patient stood in need of spiritual help and advice and recommended it accordingly. It was clear that a registered medical practitioner would not be guilty of committing any ethical offence if the activities of the clergyman, or healer, were restricted as described, and provided that he did not deal with matters calling for the exercise of professional discretion, or skill, in the accepted sphere of medical practice.

To sum up, the committee made three points. First, doctors and clergy could cooperate in their work, the best meetings between them being meetings of two, with a doctor and a clergyman discussing how they could best help the individual patient. Second, informal gatherings between small groups of doctors and clergy in a locality were of value and often brought to light people in need; in that way help could be provided. Third, occasional general meetings between doctors and clergy might be of value for the reading of papers or for discussions on matters of mutual interest.

It is on lines such as those set out by the B.M.A. special committee that most developments in this field have continued in the succeeding years. In Australia progress has wisely been slow, but increasing interest has been shown. Over the past few years groups of medical men have been meeting informally with ministers of religion in various cities and towns throughout the country, discussing the overlapping areas of their respective fields of work and sharing experiences. The most active such group is one in Melbourne, which is officially recognized by the Victorian Branch of the B.M.A. It has functioned successfully for a number of years now and holds a well-attended weekend conference for doctors and clergy each year. The presence, not only of similar though less organized groups in other States, but also of a widespread interest in the subject, is brought to light by a little book[3] recently published by the Australian Council of Churches. This records that a Clergy-Doctor Group Consultation was held near Sydney in July, 1960, under the auspices of the Australian Council of Churches, and makes available the principal papers contributed to the consultation. Among the 41 present at the consultation were general practitioners, psychiatrists, physicians and other medical practitioners, as well as parish ministers, chaplains to general hospitals and chaplains to mental hospitals. They came from New South Wales, Victoria, Queensland and South Australia, meeting under the chairmanship of Dr. Robert Southby, of Melbourne. Two important papers deal realistically with the question of education, first of clergymen in their role in the care of the sick, and second of doctors in their role in relation to the spiritual needs of patients. In considering the question of the training of theological students, the Reverend W. D. O'Reilly points to the interesting developments that have taken place in New South Wales for some years past, by which theological students have had the opportunity to become familiar with the inside of public hospitals and to become orientated to the work of the hospital, and so have been able to learn early what they can and should do and also what they cannot do. A useful paper on this from another angle was published a couple of years ago by Kathleen George, Almoner-in-Charge at Sydney Hospital.[4] On the question of the education of doctors Dr. James Isbister's paper at the consultation was wisely cautious. Nevertheless, he made it clear that much more could be done than has been attempted so far. The education of doctors at the undergraduate level in these matters certainly presents practical problems, but it should not for that reason be pushed aside, and there are post-graduate possibilities. For those who are willing to think frankly about the subject we recommend the study of the papers from the consultation and also draw attention to a series of papers[5] on "The

[3] "The Doctor and the Minister: A Discussion of Medical-Clerical Co-operation for the Good of the Sick"; 1960. Sydney: Australian Council of Churches. 8½" × 5½", pp. 40. Price: 6s.

[4] *Social Service*, 1958, 10, 2:11 (September-October).

[5] *Bull. post-grad. Comm. Med. Univ. Sydney*, 1958, 14:270 (October).

Doctor and the Spiritual Care of the Patient" which were presented at a special symposium in 1958 by the Reverend Father Peter Little, of Canisius College, Pymble, and the Reverend W. D. O'Reilly, then Assistant Principal of the Methodist Theological College in New South Wales.

It is obvious that a great deal more thought needs to go into this subject, and it would be most unwise to minimize the difficulties. A very wide range of points of view exists amongst doctors and clergy, both as individuals and as members of religious denominations, of specialist groups, and so on. These must all be respected and taken into account. In some cases they will completely preclude any active cooperation, and their existence underlines the wisdom of the continued emphasis that the B.M.A. in England has placed on individual contacts and informal discussions within small groups. The special committee in its 1956 report expressed opposition to any central organization for special meetings between doctors and clergy on a formal basis, and it is easy to see that anything of the sort might well be unsuccessful. It is difficult to envisage any conclusions in this field that would be acceptable to more than a very limited group of doctors and clergy unless those conclusions were so vague and broad that they would not please anybody or achieve anything but futility. By all means let those who are interested get together and discuss these matters informally, hammering out their differences as best they can, under the sympathetic official eye of the groups from which they come. But it is likely to remain true that, as the B.M.A. special committee said in 1956, the best meetings between doctors and clergy are meetings of two.

Current Comment.

PSEUDOMONAS INFECTIONS.

IN 1850 Sedillot demonstrated the transferability of greenish-blue discolouration on surgical dressings. In 1862 Lucke showed that this condition was infectious and saw rod-shaped elements in the discharge; 20 years later, in 1882, *Pseudomonas pyocyanea* was isolated from "blue pus" by Gessard. In spite of these observations and of some early demonstrations of its pathogenicity for animals, it was some time before the pathogenicity of this organism for man was recognized. It is easy to understand why this was so. In 1882 and 1884 Koch published his classical papers on the tubercle bacillus, and in 1883 he discovered the cholera vibrio. In the same year Fehleisen isolated the streptococcus of erysipelas and Klebs described the diphtheria bacillus. These were the days of the discovery of the great landmarks of bacteriology; the idea of varying, potential pathogens came later. In 1890 Schimmelbusch wrote of *Pseudomonas pyocyanea* that "while it can cause local inflammation and general symptoms it never invades the body, at least in adults". Later experience has shown that this is not true, and in our own day, especially since the advent of the broad-spectrum antibiotics, *Pseudomonas* infections have become increasingly important. In a monograph on these infections Claude E. Forkner[1] states that given the proper predisposing circumstances, there is scarcely a region of the body exempt from infection with this bacterium, for which, following the American Committee on Bacterial Nomenclature, he prefers the name *Pseudomonas æruginosa*. Forkner's own experience has been limited for the most part to infections developing in the setting of malignant disease. In the light of this experience he has made a comprehensive review of the literature relating to *Pseudomonas* infections. These include septicæmia, first described by Finkelstein in 1896, endocarditis, meningitis, cutaneous lesions, gastro-enteritis, respiratory infections, osteomyelitis, infections of the eye and ear, and other miscellaneous affections. Granulocytopenia and thrombocytopenia may occur, and these complications were described in the first decade of this century. Infection is most likely to occur where body mechanisms are immature, as in infants, or overtaxed as in patients already debilitated from some other cause. Forkner gives this warning:

> Therapeutic measures designed to combat one condition may provide an environment favourable for the establishment of resistant pseudomonas infections. Examples of this are numerous and include prolonged administration of antibiotics, the use of ionizing radiation and chemotherapeutic agents in neoplastic diseases and in kidney transplantation, the employment of venous and cardiac catheters, the use of pump oxygenators for extracorporeal circulation in cardiac surgery and the use of lumbar puncture for diagnostic or therapeutic reasons. These procedures are often useful and necessary but have introduced problems which must be recognized and treated effectively.

Pseudomonas is of course not the only bacterium to show this phenomenon of shifting pathogenicity; other organisms such as *Chromobacterium prodigiosum*, once regarded as non-pathogenic, may cause severe and even fatal infections if they are given a free run, so to speak, by the destruction of the normal flora of the body.

Pseudomonas æruginosa is widely distributed in Nature. It may be carried in the intestinal tract; it occurs in water and in sewage, and adapts itself readily to growth in all kinds of liquids. It may thrive in the usual antiseptic solutions used for preparing skin, and for storing catheters and surgical instruments, and bed pans and urine bottles are likely sources of contamination of the hands of ward personnel. In this regard carbolic acid as a 2% solution has been reported to be an effective antiseptic. Forkner states that serious infection is uncommon in non-debilitated adults. It is the susceptible patient for whom strict precautionary measures must be taken. For these persons prolonged and prophylactic treatment with broad-spectrum antibiotics is to be discouraged; Forkner advises that these be withheld in the absence of strictly specific indications. The presence of oral moniliasis may indicate the existence of an environment favourable to *Pseudomonas*, since these organisms frequently occur together.

As to the management of *Pseudomonas* infections, there are two major problems. The first is the apparent inability of the host to mobilize adequate natural body defence mechanisms, and the second is the resistance of the bacterium to available therapeutic agents. Polymyxin-B and neomycin or possibly colistin seem to be the drugs of choice in most cases. It is essential to commence treatment early and to continue it for a sufficient period of time, since *Pseudomonas* infections tend to take a chronic and relapsing course. Other forms of treatment need further investigation. In Forkner's experience, the use of adrenal steroids in the treatment of bacteriæmic shock due to *Pseudomonas æruginosa* has not been successful. The use of gamma globulin needs investigation. "Meanwhile", he writes, "the intelligent application of already established principles should prevent or abort many of these resistant infections due to *Ps. æruginosa*." This, the last sentence in this excellent monograph, embodies the most important lesson to be learned from it.

[1] "Pseudomonas Æruginosa Infections", by Claude E. Forkner, Jr., M.D.; 1960. New York, London: Grune & Stratton Inc. 8½" × 5", pp. 110, with many illustrations. Price: $5.25.

EDITORIAL CHANGES.

AT the meeting of Directors of the Australasian Medical Publishing Company Limited on March 20, 1961, Dr. Arthur Gwynn was appointed Deputy Editor of THE MEDICAL JOURNAL OF AUSTRALIA. Dr. Gwynn has been Assistant Editor of the Journal since 1957.

Abstracts from Medical Literature.

OTO-RHINO-LARYNGOLOGY.

Heparin as an Anti-Inflammatory Agent.

D. A. Dolowitz and T. F. Dougherty (*Laryngoscope*, July, 1960) state that heparin and other sulphuric acid substituted polysaccharides possess the ability to neutralize histamine by acting as ion exchangers following the law of mass action, by the formation of a heparin-histamine complex. Studies of the effect of heparin added to steroids and antibiotics previously unsuccessfully tried, helped clear infected external otitis, with and without weeping eczema. Selected patients with acute hay fever and asthma were helped by the intravenous administration of heparin. As the acute attack subsided, more permanent relief was established by the classical methods of treatment. There was sufficient clinical improvement to warrant further studies to check on the hypothesis that sulphated polysaccharides, especially heparin, can provide protection against endogenous histamine release, suggesting a basic protective action at least as important as that of anticoagulation. Combinations of alkaline antibiotics and heparin are valuable agents, since the complex possesses the antibiotic activity of the former, and as antibiotic is released from the complex, heparin interacts with histamine and thereby prevents the noxious effects of this substance.

Cholesteatoma.

C. Fernandez and J. R. Lindsay (*Laryngoscope*, August, 1960) report their histological observations on temporal bones of a series of experimental animals exposed to the irritative effect of a suitable quinine preparation placed in the middle ear. The animals were killed at various time intervals and certain behaviour patterns of the epithelium of the external auditory canal and eardrum were observed. These findings are pertinent to the development of cholesteatoma. They report that: (i) the epidermis of the bordering skin can migrate through a marginal perforation when the middle ear epithelium is absent; (ii) the epidermis of the eardrum can migrate through a central perforation to cover the middle ear mucosa when it is devoid of epithelium; (iii) a hyperplastic basal cell layer of the epidermis can migrate inward without apparent perforation of the eardrum provided that the membrana propria of the pars tensa or the corium of the pars flaccida has been eroded by the inflammatory process.

Frontal Sinus Surgery.

J. H. Ogura *et al.* (*Laryngoscope*, September, 1960) discuss a method of using a mucoperiosteal flap for the reconstruction of the naso-frontal duct. It has been closure of this duct which has led to failure of surgery of the frontal sinus in the past in numbers of cases. Their method presented is based on the work of Boyden and Tato. Mucosal flaps fashioned from the lateral wall and septum of the nose are rotated upwards and laterally into the frontal sinus, creating a new naso-frontal duct common to both sinuses. The authors review the literature and mention the various methods used at the present time for frontal sinus surgery. They present a small series of 21 cases of advanced frontal sinus disease in which the method was used with what they consider to be highly satisfactory results for terms of from one to ten years.

Cerebello-Pontine Angle Tumours.

P. C. Bucy and F. Isamat (*Arch. Otolaryng.*, January, 1961) discuss cerebello-pontine angle tumours, with relationship to early diagnosis. They point out that in their series of cases they have found, like Cushing, Pool and others, that tumours in this area can affect the function of practically any structure in the posterior cranial fossa. This includes cranial nerves, the cerebellum and brain stem, but those changes do not help in the early diagnosis. The authors state that the only sign or symptom which can be relied upon for early diagnosis is evidence of progressive involvement of the eighth crania] nerve. They state that all cases of neural type deafness should be suspect, especially if progressive. If vestibular function is also found to be absent or defective, they advocate surgical exploration of the cerebello-pontine angle, even if X-ray examination and cerebro-spinal fluid protein estimation reveal no abnormality, and there is no evidence of involvement of other cranial nerves, cerebellum or brain stem. The authors hope that by the adoption of this attitude, tumours will be discovered and removed before they can cause positive findings in these estimations and examinations, and before the onset of headache, vomiting or fundal changes due to increased intracranial pressure from obstruction of the fourth ventricle.

Tomography of the Normal Temporal Bone.

O. Petersen and P. Stoksted (*Arch. Otolaryng.*, January, 1961) describe the technique of tomography of the temporal bone with sectional radiography at various levels, down to one millimetre in depth, and state that this places a new diagnostic aid at the disposal of otologists. The ossicles and the course of the facial nerve can be studied, and pathological changes in the antrum and attic can be seen at a very early stage. This is advantageous in planning surgical treatment, important in reconstructive middle ear surgery. Tomography allows the radiologist to pinpoint layers of depth which are important in close inspection of the so-called "key area", namely the attic-aditus-antrum region. Conventional X-ray films cannot avoid blurring of edges and overlying of irrelevant structures over the area under question. The authors point out that the method which they are now using is still in the developmental stage, but state that they consider that its apparent importance justifies an early report. They refer to the "Polytome", which was developed in 1950, and enables both film and tube to move during exposure. This allows the radiologist to take tomograms of a structure in such a way that it is exposed in sections down to 1 mm. in thickness. This makes it possible to reproduce the tiny structures found in the interior of the temporal bone. The authors then go on to describe from tomograms and line drawings of these films the various structures seen with the aid of the tomograph.

Crossbar Prosthesis in Hearing.

G. D. Hayden (*Laryngoscope*, September, 1960) has developed an addition to a simple "Polythene" tube prosthesis for use between the tympanic membrane or a skin graft and the oval window. He states that he found difficulty in maintaining a tight connexion between the bony footplate and the soft tissue of the drum or graft. This was especially so with shallow oval window niches. He removes the footplate of the stapes (even if mobile) and applies either "Gelfoam" or vein graft over the open oval window. The crossbar prosthesis consists of a piece of P.E. 50 tubing passing through the centre of a piece of P.E. 205 tube (which acts as the crossbar) and the strut is positioned over the "Gelfoam" or vein graft. The cross piece (of P.E. 205) then rests over the lips of the oval window, thus supporting the acoustic transmitter. The author has used this technique in cases of Type IV tympanoplasties, and in cases of fenestration where there is still good cochlear reserve but the hearing has not been maintained. He reports on only seven consecutive cases but considers that this technique solves one of the problems associated with these operations.

Endaural Cerebral Hernia.

P. H. Schurr (*Brit. J. Surg.*, January, 1960) states that cerebral fungation is one of the many once familiar conditions which are now becoming rarities. Fifty years ago medical journals contained many descriptions of post-aural extrusions of cerebrum or cerebellum which followed mastoid surgery. This type of brain extrusion is now extremely rare, but the author wishes to draw attention to the less obvious post-traumatic endaural hernia which still occurs relatively frequently. This consists of a prolapse of temporal lobe through a defect in the tegmen tympani and dura mater overlying the middle ear, and most frequently follows trauma to the dura of the middle fossa, during mastoidectomy—either end aural or post-aural—but it is also an occasional sequel to head injury. The hernia may present at the external auditory meatus or be seen only on auroscopy or after division of a false membrane. Symptoms include chronic discharge, aural or temporal pain, headache and epilepsy. Associated conditions include cerebral abscess and cerebro-spinal otorrhœa, with the possible sequel of meningitis. Treatment should be by means of an intradural fascial repair through a craniotomy. Three illustrative cases are described.

Early Diagnosis of Œsophageal Burns.

J. Kaplan *et alii* (*Arch. Otolaryng.*, January, 1961) describe the routine followed at their hospital in cases of suspected œsophageal burns. They state

that, by this routine, 52 out of 74 patients seen in a ten-month period were found to have no burns of the œsophagus and were spared prolonged and unpleasant therapy. The swallowing of corrosive substances presumes œsophageal burns until disproved. Seventy of the 75 patients had burns of the lips, mouth or pharynx, but only 21 had œsophageal burns which the authors considered could lead to stricture, and therefore warranted institution of therapeutic measures. Their figures approximate to those of other writers on this subject. The routine is therefore designed to distinguish those patients who will require long-term treatment to reduce stricture formation from those who will not. The authors do not classify erythema of the mucous membrane as an œsophageal burn, and do not think this degree of damage will lead to stricture at a later date. It is noted that of the various substances swallowed, lye provided 47 of the 75 cases, and of these 47 patients, 13 had œsophageal burns. The next commonest bleach accounted for 12 patients, but only one of these had œsophageal burns. The authors' routine consists of (*a*) immediate steps to be taken on admission of the patient to hospital, (*b*) diagnostic measures, of which the most important is œsophagoscopy under general anæsthesia within five days, and (*c*) long-term treatment, depending on the diagnostic findings.

PATHOLOGY.

Circulating Cancer Cells.

R. F. ALEXANDER AND A. I. SPRIGGS (*J. clin. Path.*, September, 1960) made white-cell concentrates from the blood of 140 patients with malignant disease and of 60 controls. The slides were searched for tumour cells and for other unusual cells with which they might be confused. Several million white cells were scanned in the slides from each case. Acceptable tumour cells were identified in the blood of seven patients, none of whom survived for more than a few months. These cells are illustrated, as well as various other cell types which may have been confused with malignant cells in the past. It is concluded that the cytology of white cell concentrates should be further explored before statistics about the occurrence of circulating tumour cells are accepted.

Myelomatosis.

B. J. LEONARD (*Clin. Radiol.*, January, 1961) describes some of the pathological features of 48 cases of myelomatosis, including the results of 38 post-mortem examinations. The finding of plasma cells in the bone marrow is an essential step in the diagnosis of myelomatosis. In 46 patients the marrow picture was diagnostic from the start, but in two patients three punctures were necessary. The skeletal X-ray appearances were diagnostic in 34 cases, and the plasma proteins in 38 cases. Myelomatosis is a neoplastic disease that predominantly involves those parts of the skeleton which contain red marrow in the adult. The myelomatous process can be solitary or diffuse, but in most of the reported cases of solitary disease the studies were inadequate and did not include plasma protein or bone marrow investigations, and the author notes that not a single case of solitary myeloma has been diagnosed at the Mayo Clinic since the introduction of routine marrow punctures. The author's post-mortem studies show that these cases can be divided into a leukæmic and a sarcomatous group. In 30 there was a diffuse plasma cell infiltration of the marrow, the spleen, the liver and the lymph nodes, and such findings support the concept that myelomatosis is a plasma-cell leukæmia with a prolonged aleukæmic phase. In the smaller group of eight patients there were nodular infiltrations of the liver and the spleen which were like those seen in reticulosarcoma. Infiltration of the pancreas, thyroid, myocardium and lung were common in this group but were not seen in the leukæmic group. Histologically, the tumour tissue showed a greater degree of anaplasia. The author then discusses the occurrence of high serum calcium levels in three patients and the possible relation of this to the impaired kidney function shown by these patients. The occurrence of amyloidosis (paramyloidosis) in myelomatosis, in Hodgkin's disease and in chronic leukæmia is also discussed, and the author asks whether the lymphocyte as well as the plasma cell can produce abnormal proteins.

Cervical Cytology Surveys.

R. F. KAISER *et alii* (*J. nat. Cancer Inst.*, October, 1960) found the incidence of unsuspected invasive cancer of the cervix in Memphis and Shelby County, Tennessee, to be 1·3 per 1000 white residents and 1·8 cases per 1000 Negro residents, while the figures for carcinoma-in-situ were 3·1 and 4·0 respectively. One of the advantages of the cervical cytological survey was that cases of invasive carcinoma were being discovered three years earlier than in the pre-survey era.

Secondary Hæmochromatosis.

G. KENT AND H. POPPER (*Arch. Path.*, November, 1960) have studied the hepatic changes in cases of hæmochromatosis associated with chronic anæmia (secondary hæmochromatosis) and compared them with those in cases of primary hæmochromatosis. There were five cases of the former and five of the latter, two being early and three being fully developed. In addition, the iron distribution in the liver and other organs was studied both in cirrhosis and in miscellaneous anæmias. The authors consider the two processes to be similar except that the disorder is more active in secondary hæmochromatosis. They believe that iron deposition causes hepatocellular damage followed by fibrosis. In anæmias of hæmolytic type the deposition of iron was mainly reticulo-endothelial, while in erythræmic myelosis, Cooley's anæmia and pernicious anæmia it was mainly parenchymal. On the basis of morphological observations they divided hæmosiderosis into parenchymal and reticulo-endothelial types. Parenchymal hæmosiderosis was further divided into a form without and another form with tissue damage. The latter is designated hæmochromatosis. It is suggested that excessive absorption and release from the body stores of iron, with concomitant faulty utilization by the bone marrow, lead to the accumulation of a form of iron which readily enters the parenchymal cells and finally elicits the tissue injury of hæmochromatosis. According to this concept, the type of anæmia is the dominant factor in secondary hæmochromatosis rather than the blood transfusions, which only contribute to the development of the lesion.

Pyelonephritis in Mouse and Man.

R. H. GORRILL AND S. DE NAVASQUEZ (*J. Path. Bact.*, October, 1960) have used mice to observe the various manifestations of pyelonephritis. Under suitably controlled conditions, an injection of staphylococci will produce a predictable degree of renal damage in mice. The lesions so produced were followed throughout the life of the mouse. The pathogenesis and evolution of the disease are discussed and compared with pyelonephritis in humans. The authors found that most of the infected kidneys become sterile some weeks after infection, though a few mice remained infected for months. In a small proportion, a secondary acute infection of the damaged kidney occurred, leading to death of the animal. As a result of papillary necrosis, the authors observed the complete disappearance of one kidney, and this leads them to suspect that some cases of renal agenesis may be of inflammatory origin. Furthermore, the disuse atrophy following unilateral disease with hydronephrosis produces a remarkable resemblance to the hypoplastic kidney of humans.

Systemic Xanthomatosis.

E. F. HIRSCH AND F. C. BAUER (*Arch. Path.*, October, 1960) have reported a case of systemic xanthomatosis in which there were both biliary cirrhosis of the liver and diffuse pulmonary fibrosis. Death was due to a ruptured œsophageal varix. There were granulomas present in the liver, lungs, spleen and lymph nodes which resembled sarcoidosis in some degree, but the diagnosis of xanthomatosis was confirmed by chemical means.

Immunological Studies of Heart Tissue.

M. H. KAPLAN AND F. D. DALLENBACH (*J. exp. Med.*, January, 1961) have used fluorescent antibody methods to demonstrate deposits of bound gamma globulin with characteristic histological distribution in the auricular appendages of certain patients with rheumatic heart disease. These deposits were not associated with Aschoff lesions; they occurred in spotty distribution throughout the myocardium, involving myofibres and, to a lesser extent, connective tissue and vessel walls. Albumin and fibrin were generally found to be absent from these sites. Control specimens taken at necropsies and from biopsies did not reveal such deposits. The deposits were present in 18 of 100 specimens which the authors studied, and this figure they consider to be significant in view of their absence from hearts unaffected by rheumatic disease

British Medical Association.

VICTORIAN BRANCH: SCIENTIFIC.

A MEETING of the Victorian Branch of the British Medical Association was held on October 22, 1960, at the Ballarat and District Base Hospital. The first part of this report appeared in the issue of April 1, 1961, page 495.

Pyæmia with Iliac Osteomyelitis.

MR. D. B. SKEWES showed a female patient, aged 13 years, suffering from pyæmia with iliac osteomyelitis. Her past history was irrelevant. On June 13, 1960, the girl had had an infected blister on her left heel with inguinal adenitis, and had been kept home from school. Over the next three or four days she remained in bed because she was generally miserable. Her left leg was painful at the hip on movement, and too painful for weight bearing. On June 20, she was admitted to the local hospital with a temperature of 102° F. and signs of left basal pneumonia, pain in the chest and a boil on the thigh. On the same day "Cilicaine" (1,000,000 units twice a day) and "Sulphatriad" (two tablets every four hours) were given. On the next day "Sulphatriad" was discontinued, and "Chloromycetin" (two tablets every four hours) was given instead. On June 22, the dosage of "Chloromycetin" was decreased to two tablets every six hours. On June 25, the child complained of generalized pain and diarrhœa. "Cilicaine" suspension and streptomycin (1 gramme per day) were given. Her temperature was 104·6° F. "Achromycin" was given in a dosage of two tablets every six hours.

On June 27 the patient was transferred to Ballarat. She had a fluctuating temperature. Antibiotics tried included penicillin, "Chloromycetin", "Achromycin" and streptomycin, and "Sulphatriad" was also given. Her cough was less but her leg was no better. On examination, the child was pale. The hæmoglobin value was 11·5 grammes per 100 ml. (79%); the leucocytes numbered 13,850 per cubic millimetre, 17% being neutrophils, 22% lymphocytes, 2% eosinophils and 3% monocytes. Some pallor of the erythrocytes was detected. An erythrocyte sedimentation test resulted in the following figures: 114 millimetres in the first hour, 27 millimetres in the second hour. Examination of the patient's left leg revealed a blister on the left heel. There was a soft-tissue tender swelling over the anterior aspect of the left thigh just below the inguinal ligament; it seemed to be fluctuant. There was great tenderness over the greater trochanter and just above it. All movements were painful. On June 28, when the patient was examined by Mr. Skewes, she was lying with her legs acutely flexed. Light skin traction was suggested. Generalized tenderness, but no local tenderness, was present in the left hip region. On June 29, an X-ray examination was carried out. No abnormality was detected in the chest or in the left hip and the pelvis. At that time her hæmoglobin value was 10·5 grammes per 100 ml. (72%), and the leucocytes numbered 15,000 per cubic millimetre. On July 4, attempted culture of microorganisms from the blood produced no growth in 14 days. On July 5, an X-ray examination of the left hip suggested that the joint space might be diminishing slightly, and the outline of the femoral head was less sharp. The lateral border of the left ilium now had a moth-eaten appearance, with slight lifting of the periosteum and one or two larger ill-defined translucent areas. The appearances suggested osteomyelitis. On July 7, incision and packing were carried out. Culture of the pus produced a growth of *Staphylococcus aureus* resistant to penicillin and to sulphonamides. On July 21, an X-ray examination revealed pronounced destruction of the outer border of the ilium extending as far as the acetabulum. The roof of the acetabulum was involved. On August 24, X-ray examination revealed gross destructive changes in the lower part of the ilium, particularly the acetabular region, with destruction of the hip joint and the head of the femur, which was now also eroded. Elsewhere in the ilium there was fine mottling with loss of outline up to the sacro-iliac joint region, indicating extensive involvement of that bone. On September 14, a further X-ray examination showed that the hip-joint space was now completely obliterated. No further destruction in the ilium was evident. Erythromycin and nystatin were given for seven weeks and chloramphenicol for six weeks. Treatment with "Altafur" was begun on September 6 and discontinued on September 7, the dosage being 500 mg. statim and 50 mg. every six hours. On October 13, the destructive process appeared to have halted. Calcification was occurring with some periosteal thickening. Some marginal bone was lying loose along the iliac crest, which was probably the remains of the epiphysis. The head of the femur was more clearly seen and did not appear to be grossly disturbed. However, the neighbouring acetabulum, particularly in the upper outer portion, showed extensive destruction.

Naso-Pharyngeal Tumour.

DR. I. LOPERT discussed the case of a girl, aged 21 years, who had been admitted to hospital on May 20, 1960, complaining of a swelling of the left eye present for one month. For six months prior to her admission to hospital she had had occasional intermittent blood-stained discharge from the nose, but no nasal obstruction. At the beginning of April she began to experience some discomfort with bilateral earache and double vision. She was not aware of any deafness, nor did she complain of tinnitus or aural discharge. After several weeks the left eye began to swell and her mother persuaded her to seek medical advice. She was examined by the ophthalmologist, who referred her to the ear, nose and throat department. On being directly questioned, the patient said that she had lost her sense of smell two years previously, but had not lost her sense of taste. Examination of the patient showed her to be a pale, ill-looking girl with severe proptosis and lateral deviation of the left eye. Investigation of the nasal airways showed the presence of greyish, cheesy material in the left nostril, and a round swelling was observed on the right side of the septum. The naso-pharynx appeared clear, and there was no displacement or distortion of the soft palate; the ear drums appeared normal. A gland was palpable on the left side, below the angle of the jaw. As the condition was thought to be an infective process with periorbital œdema, bilateral antral washout was performed. That was without result. A portion of the tissue from the left nostril was taken for biopsy, and the report was: "Completely necrotic tissue showing a few living inflammatory cells. I cannot therefore make out the original structure and cannot exclude necrotic malignant tissue." X-ray films of the sinuses and tomograms were taken, which showed destruction of the left frontal and sphenoid sinuses and the upper nasal cavity and replacement with tissue thought to be bone. Further films suggested that the shadow was actually a soft-tissue shadow.

The patient was discharged from hospital on June 6, arrangements having been made for her to go to the Peter MacCallum Clinic in Melbourne. However, her condition rapidly deteriorated, and she had an epileptiform fit. She was readmitted to hospital on June 14. On June 20, tissue from the left ethmoid region was taken for further biopsy, and the pathologist reported that the section suggested malignant disease—angiomatous sarcoma or endothelioma. She was transferred to the Peter MacCallum Clinic on June 22 for X-ray treatment, and had been followed at the out-patient department at Ballarat. When she was examined on October 19, she appeared to be clinically free of symptoms and no signs were present. Her sense of smell was still absent. The left eye was in its normal position, and sight was normal. No glands could be palpated in the neck. Further X-ray films and tomograms were taken. They showed the left frontal sinus still completely opaque, and now completely replaced by bone. A small amount of air was present in the sphenoidal sinus and in the ethmoid region. Discussing the pathology, Dr. Lopert said that both benign and malignant tumours occurred in the naso-pharynx. The most common of the benign tumours was the fibroma, sometimes referred to as the angiofibroma according to the amount of blood-vessel tissue in the tumour. Those tumours were also referred to as naso-pharyngeal polyps. That type of growth occurred exclusively in young male subjects from the age of puberty to about 24 or 25 years, when it underwent spontaneous involution. The tumours consisted entirely of fibrous tissue, and were rich in primitive blood vessels incapable of retraction. That accounted for the severe bleeding when there was any interference with the tumour. Another reason for the hæmorrhagic tendency was the absence of a definite capsule. The tumours originated from the fibrous tissue of the naso-pharynx, very often from the bucco-pharyngeal fascia. The tumour was only locally malignant by virtue of its localization and pressure on surrounding tissues. It did not produce secondary deposits in the glands or distant metastatic growths. It extended by pressing on and causing atrophy of the parts with which it came into contact. In that way bones were absorbed, and the tumour sent processes into the nose, sinuses and orbits. The symptoms might be divided into early and late. Early symptoms occurred while the tumour was still in the naso-pharynx. They comprised nasal obstruction, nasal twang to the voice, nasal and post-nasal discharge, disturbance of the sense of smell and occasionally

epistaxis. Intermittent deafness might occur, but pain was often absent or very slight. Later symptoms occurred as the tumour grew into the choanæ and the orbits. They comprised epiphora, diplopia and exophthalmos. Broadening of the nose and a typical appearance known as frog face were produced. Acute neuralgia of the face and ears set in. Death resulted mainly from hæmorrhage or from the development of severe anæmia with cachexia or sepsis. Discussing the progress without treatment, Dr. Lopert said that death might ensue in between six months and three years. It occurred more rapidly at or before puberty, and much more slowly in those who had reached the age of 18 to 20 years. The prognosis was serious, depending mainly on the rate of growth and the age of the patient. The nearer to the age of spontaneous regression, the better was the prognosis. The differential diagnosis was mainly from true sarcoma. It might be very difficult, as the tumours occurred in the same age group; but fortunately differentiation was of academic importance only, as the treatment was the same.

Discussing malignant tumours, Dr. Lopert said that they were carcinomas, sarcomas and reticulum-cell tumours. The commonest malignant growth of the naso-pharynx seen in women was the carcinoma. Those tumours occurred in the forty to sixty years age group, the average age being 45 years in a large series of cases. They accounted for about 68% of the malignant growths of the naso-pharynx in women. Sarcomas were much rarer, and formed only 16% of all malignant growths. They might appear in early life commonly before the age of 30 years. They originated in the same sites as the other malignant growths, except that a very small percentage (about 1·5%) originated in the sphenoidal sinus. Their symptomatology therefore differed slightly from that of other malignant growths, on account of the site of origin and the direction of growth. Symptoms of malignant growths of the naso-pharynx were several. Nasal obstruction was often absent. Deafness was often the first symptom, with tinnitus due to blocking of the Eustachian tubes. Pain in the ears was also an early symptom. Enlargement of glands in the neck was also an early occurrence in a majority of cases. The glands were often very large, and out of proportion to the size of the tumour. The glands affected were the deep cervical group, mainly those behind the angle of the jaw. They were not adherent to the skin. Facial pain and toothache appeared very early, and later there was diplopia with exophthalmos as the tumour invaded the orbit. The naso-pharynx was occupied by the growth, and in the later stages the soft palate was encroached upon and displaced. In the rare cases in which the tumour originated in the sphenoidal sinus, the symptoms differed slightly, and the tumour did not grow through the body of the sphenoidal sinus into the naso-pharynx proper, but into the spheno-ethmoid recess through the opening in the sinus. Deafness and tinnitus were absent, although earache was present. No growth was seen in the naso-pharynx, and the distortion of the soft palate did not occur. Nasal obstruction was often absent, or was seen as a very late symptom and was rarely very severe. Dr. Lopert finally said that his patient had presented with many of the above-mentioned symptoms. She had slight blood-stained nasal discharge, loss of the sense of smell, and no nasal obstruction until very late and then not very pronounced. No growth was visible in the naso-pharynx, and there was no distortion of the soft palate. Although she had earache, she had no deafness, tinnitus or aural discharge. Large discrete glands were present behind the angle of the jaw on the right side. That, in conjunction with the X-ray films and the tomograms and the factors of her sex and age, led him to believe that he was dealing with a malignant connective-tissue tumour originating in the sphenoidal sinus.

Obscure Recurrent Abdominal Pain.

MR. J. PRYOR said that recurrent abdominal pain represented one of the most frequent and exacting clinical problems in medicine. The possibilities were almost infinite, and the solution of the problem in a particular case was sometimes easy, but was often very difficult. His purpose in presenting his paper was to indicate briefly a plan of diagnosis and management, and to discuss in some detail several diseases, mostly surgical, which might cause that syndrome. The cases he wished to discuss were those involving children and adults who for long periods had had recurrent attacks of abdominal pain, often associated with nausea and vomiting, in which interval examination gave inconclusive results. That excluded from discussion conditions such as carcinoma of the stomach or colon, which might have a prodromal period of several months of vague abdominal pain, but whose nature should be suspected and disclosed after adequate examination and investigation.

Mr. Pryor went on to say that in considering the diagnosis of recurrent abdominal pain, the first requisite was a detailed analysis of the pain. The questions to be asked were: (*a*) for how long the attacks had been occurring; (*b*) the situation of the pain; (*c*) the frequency of its occurrence and its duration; (*d*) its nature constant (colicky, etc.) and severity; (*e*) whether it disappeared suddenly or slowly; (*f*) whether it radiated; (*g*) what caused it; (*h*) what diminished it; (*i*) its relation to vomiting—the type and nature of the vomiting, how long the vomiting persisted and whether the vomitus comprised stomach content, bile or small bowel contents; (*j*) whether the appearance of pain and vomiting was associated with the passing of flatus or of frequent loose stools; (*k*) whether there were any other associated symptoms, such as tenderness over the site of a possible hernia, abdominal distension, constipation, frequency of micturition, pain in the back, headache, temporary loss of consciousness, or in females dysmenorrhœa. In inquiring into the previous history, attention should be paid to any previous operation including, if possible, the operative findings, the surgical procedure employed and whether the symptoms were relieved. With that information examination was performed, but in the cases to which he referred it was often unrewarding.

From the nature of the pain and its site, one could usually determine the probable organs or tissues at fault, and relevant investigations of those were made. When all that information was assessed, they might have the diagnosis or they might not. If they had not a diagnosis, several important questions must be answered. First, was the pain organic in origin? He did not know of any diagnostic criteria to distinguish infallibly the pain of neurosis or psychosis. Patients had been committeed to mental institutions because of bizarre pain and associated behaviour disturbances, and at autopsy had been found to have a carcinoma of the body of the pancreas undiagnosed during life. In at least three cases in his present series it seemed that a definite neurosis was present; but in each case a serious organic disease was found to be the cause. The second question was whether the pain was disabling. An attack of abdominal pain of short duration occurring at frequent intervals in a patient who was otherwise perfectly healthy, and whose condition could not be diagnosed, would warrant several months of observation and investigation before operation was contemplated. However, if the episodes of pain lasted more than a few moments and recurred at frequent intervals, more active management was needed. If it was possible to wait, the benefits were twofold. First, they might have the opportunity of seeing the patient during an attack, and examination might reveal certain vital clues—for example, a small irreducible hernia, or obvious abdominal distension with increased bowel sounds. Secondly, if delay was possible the disease itself might become more florid and diagnosis easier. An example was the case of a young boy aged eight years who had complained of recurrent pains for which he had had an uneventful appendicectomy elsewhere. He was observed during an attack to have lower abdominal tenderness, and laparotomy disclosed an acute inflamed right Meckel's diverticulum. However, in some cases they did not have the answer, and then laparotomy had an important role in carefully selected cases. It was essential to exclude renal disease and back disease with referred pain (by no means uncommon) before deciding on laparotomy. The type of case in which it was indicated was that in which the patient had recurrent and increasingly frequent attacks of disabling pain with signs indicative of abdominal inflammation and intestinal obstruction.

Mr. Pryor then said that he intended to discuss some of his own cases, indicating particularly the role of laparotomy. The first group comprised cases of recurrent upper abdominal pain, and the first condition discussed was epigastric hernia. He said that small epigastric hernias were of frequent occurrence, and he considered that they were not infrequent sources of recurrent obscure upper abdominal pain. At operation one was often impressed by the narrow neck in the linea alba through which large amounts of extraperitoneal fat might herniate, so that contraction of the linea alba might cause ischæmia of the contents of the hernia and so produce pain. The diagnostic sign was tenderness at the hernial sites at the time of the occurrence of the pain. If the hernia was found at interval examination, it should be shown to the patient so that he could feel it during an attack of pain. If it was tender, the diagnosis of ischæmia of the hernial contents, perhaps with irreducibility, was certain. He had had three such cases, one patient being a boy, aged 12 years, and the other

two adults, and none of the patients had had further episodes of pain after operation. The second condition causing recurrent abdominal pain was high lesser curve ulcer. That was a diagnostic trap. Mr. Pryor gave as an example a case of a female patient, aged 53 years, who had had recurrent epigastric pains for seven years. It had first appeared on the day after the death of her husband from abdominal cancer. The pain was constant in site and in occurrence, but had no relation to meals, did not radiate and was not relieved by food or antacids. She had been investigated several times for the pain and no diagnosis had been made. When she was examined, some vague tenderness was detected in the upper part of the abdomen. On that account a small gastric ulcer was suspected, and a further barium meal X-ray examination was ordered. In the film, an obvious niche was seen high on the lesser curve. That it was in fact an ulcer was shown by its presence after a repeat barium meal X-ray examination, and more convincingly by the complete subsidence of symptoms after four weeks in hospital on a strict ulcer régime. Since then the patient had had no further pain. The third condition in the first group was gall-bladder disease without radiological abnormality. Dr. Pryor presented two cases to illustrate this point. The first was that of a female patient, aged 42 years, who had had recurrent colicky abdominal pain for many years. The pain was suggestive of biliary colic, but repeated cholecystographic examination showed a normally filling and emptying gall-bladder with no evidence of stones. However, the pain became increasingly frequent, and because of its close similarity to biliary colic laparotomy was advised. At operation the gall-bladder contained many small stones 1 to 2 mm. in diameter, and at a cholecystographic examination the cystic duct was found to be so narrow as not to allow even one of those small stones to pass. Thus the biliary colic had been produced. She had had no further attacks in two years since operation. A second case was that of a female patient, aged 28 years, who for 12 months had had recurrent upper right abdominal pain which did not radiate, but which was suggestive of gall-bladder disease. During one episode of pain acute tenderness occurred, and there was suspicion of a mass in the right hypochondrium. A cholecystographic examination several weeks after that episode showed only poor function of the gall-bladder, but no stones. Her attacks of pain persisted, and operation was advised. A thick-walled gall-bladder with numerous adhesions to surrounding viscera was removed. It contained no stones. Microscopic examination showed a great increase in the muscle of the subserous layer. There was also a mild degree of cholesterosis. After operation the patient had been free of pain. Mr. Pryor commented that although radiological investigation of the gall-bladder was reliable, there were some cases in which clinical management was the only guide to gall-bladder disease. The fourth condition in the first group was stomal ulcer. Mr. Pryor described the case of a male patient, aged 65 years, who had undergone a Bilroth I gastrectomy for chronic duodenal ulcer in 1955. His convalescence had apparently been stormy, and he had developed an incisional hernia. Two years later he had begun to suffer from vague recurrent upper abdominal pain, variable in site and severity and showing no relation to meals. Over a period he also noted occasional pain in the left side of the abdomen, so that when he was examined in March the clinical picture was confused. He had repeated barium meal X-ray examinations with normal results. On examination, he was found to be well covered and even obese. He had an incisional hernia and diffuse ill-defined tenderness in the upper part of the abdomen. On that account operation was advised. A large active stomal ulcer was found penetrating the pancreas. The gastrectomy was disconnected, the duodenum was closed, and after resection of a sleeve of stomach an antecholic gastro-enterostomy was performed. After operation his upper abdominal pain disappeared. Six weeks later he returned in great distress with recurrence of the pain. Examination at that time revealed a small irreducible left femoral hernia. Repair of that condition cured his pain, and no further pain had occurred in the last six months. Mr. Pryor commented that that was an unusual case of a double lesion.

Mr. Pryor then discussed the second type of recurrent abdominal pain (central). He said that recurrent central abdominal pain was one of the commonest diseases in children. Interval examination was frequently unrewarding. The most common causes in his experience were mesenteric adenitis, appendiceal colic, recurrent subacute appendicitis, constipation and urinary infection. More rare were cases of Meckel's diverticulitis, and recurrent obstruction due to maldevelopment of the gut. In the time available he intended to discuss more fully the condition of mesenteric adenitis. He considered that that disease in the alimentary tract approximated to tonsillitis. In other words, the same lesion occurred in the Peyer's patch in the ileum with associated pronounced lymphadenopathy of the mesenteric glands. It represented a stage in the maturity of response of the lymphatic nodes to infection. In the same way that many children had minor attacks of tonsillitis, he was sure that they had minor attacks of mesenteric adenitis, and that disease accounted for large numbers of cases of abdominal pain in children. Unlike the clinical state of acute tonsillitis, the child with mesenteric adenitis was often not very ill, and his pain was frequently episodic. Clinical examination in an attack might reveal a throat infection with a raised temperature, and on abdominal examination inconstant tenderness might be found, possibly with some palpable mesenteric glands. One of the diagnostic features during an attack was that the child was usually running about when he was siezed by an attack of pain. On recovering from it he became active again, in contrast to the child with appendicitis or some other serious abdominal disease, who remained quietly resting through the course of the illness. Why the pain was colicky was something of a puzzle. It was probably due to spasm of the gut, and was not really caused by the lymphadenopathy itself. Sometimes it was difficult to distinguish those cases from appendicitis, and at operation one occasionally found a large mesenteric node the size of a walnut. There was yet much to be learnt about that disease. Referring briefly to appendiceal colic, Mr. Pryor said that the disease had been well described by Southby. He himself had once had the opportunity of seeing the appendix contract behind an obstructing fæcolith at operation. It contracted to a narrow cord and became white and avascular. That left him in no doubt that colic of the appendix was the cause of severe abdominal pain.

Mr. Pryor went on to say that in adults with recurrent central abdominal pain two clinical syndromes might be recognized. The first was recurrent abdominal inflammation, which was characterized by a gradual onset of pain lasting for several hours or days and then slowly subsiding. The pain might be associated with anorexia, nausea or even vomiting. Laparotomy in those cases usually disclosed obvious inflammation. He gave two cases as examples. The first was that of a young man, aged 18 years, who for three or four years had had episodes of recurrent central abdominal pain lasting from four to twelve hours. The pain was associated with no other symptoms. Those attacks were becoming increasingly frequent, and were occurring on an average once or twice a week. He was suspected of being a neurotic by his workmates because he did not look ill when he had the pains. All investigations were unrewarding. At laparotomy the appendix was found to be surrounded by adhesions, some of which were recent. The distal half of the appendix was completely fibrosed. Appendicectomy completely relieved his pain. The second case was that of a man, aged 27 years, who had had recurrent attacks of central abdominal pain for six years. The pain had the characteristics of abdominal inflammation, and whilst he was waiting for admission to hospital for laparotomy he developed an acute attack. On examination of the patient, there were for the first time signs of lower abdominal peritonitis. At operation an inflammatory caecal mass was found separate from the appendix. It was due to inflammation of a solitary congenital diverticulum which contained a muscular coat. Mr. Pryor commented that that disease was important to remember, as it was not very rare, and it was the cause of recurrent abdominal pain and right inguinal fossa pain after appendicectomy. It could easily be missed during laparotomy unless it was specifically sought. Perhaps the most important fact about it was that when inflammation was present it resembled a perforated carcinoma of the caecum. If it was recognized the patient might be spared an unnecessary hemicolectomy. The second condition in the second group was recurrent self-relieving obstruction. Mr. Pryor said that that syndrome was rarely described in textbooks, but it was not uncommon. The characteristics were colicky pain associated with nausea and often vomiting, which lasted for some hours or even for a day or two, and which subsided with the frequent passage of foul liquid stools. If the colicky abdominal pain was relieved by the frequent passage of offensive stools, the cause was usually recurrent obstruction and that was almost pathognomonic. A remarkable example of that syndrome was the case of a woman, aged 53 years, who had suffered from recurrent colicky abdominal pain associated with vomiting in episodes for 35 years. The episodes of pain lasted from a few hours up to 36 hours. The pain was always colicky, always associated with nausea and usually associated with vomiting, and during the prolonged attacks

subsided with the frequent passage of liquid stools. On one occasion she was admitted to hospital and her clinical state was diagnosed as gastro-enteritis. Interval examination was unrewarding and investigations were not helpful. At laparotomy, at a point 9 inches from the ileo-caecal valve the mesentery for an area of 3 inches was avascular, and a soft tumour was felt in the wall of the corresponding portion of the ileum. On closer inspection it was found to be a lipoma which projected into the lumen. The area was resected, and when the specimen was opened it was apparent that the subserous lipoma was causing repeated episodes of intussusception. Mr. Pryor commented that one could not help wondering how many cases of that kind were going undiagnosed. Unless a careful search was made during laparotomy the condition could easily be overlooked, particularly in fat people. A second example of the second condition was the case of a woman, aged 20 years, who had had recurrent attacks of colicky pain for two years. During one of those attacks her doctor had found some lower abdominal tenderness and she had been admitted to hospital. At operation the appendix contained fæcoliths, and the presence of free serous exudate led to the discovery of a segment of Crohn's disease which was causing recurrent incomplete obstruction.

Mr. Pryor then discussed the third type of recurrent abdominal pain (lower abdominal). He quoted the case of a woman, aged 59 years, who had had recurrent episodes of such pain for many years. They were often associated with lower abdominal discomfort and nausea lasting for some hours and sometimes for days. For several months she had had a constant lower abdominal pain and had been referred to a gynæcologist. He had found her to be ill and wasted, but there was no evidence of diseased pelvic organs. A barium meal enema X-ray examination had disclosed no convincing evidence of diverticulitis. The patient had been referred to Mr. Pryor for an opinion. Abdominal examination revealed no abnormality. No lower abdominal tenderness was present, and he was extremely doubtful of the diagnosis of diverticulitis. However, it was obvious that some disease was present and laparotomy was performed. To his surprise, there was a very thick contracted loop of sigmoid bound by dense adhesions to the side wall of the pelvis. There was no other abnormality. After resection of that loop the patient had had complete relief from her pain and an astonishing return to well-being. Mr. Pryor commented that the moral of the story was that radiological signs were not always a good guide to the true status of diverticulitis, and that after a loop became adherent to the peritoneum of the pelvis constant pain might be produced in the absence of any pelvic or abdominal findings. Mr. Pryor finally discussed the case of a young man, aged 20 years, who for several years had had recurrent episodes of vague left-sided lower abdominal pain with no distinguishing characteristics. He had previously been investigated for the pain, and had been referred because he developed a further attack of pain when falling on a football. Abdominal examination revealed no abnormality, but slight tenderness was present in the left renal area. An excretion pyelogram disclosed a large hydronephrosis, which at operation was found to contain much blood clot because of the recent injury. Mr. Pryor commented that that case illustrated the point that renal disease had always to be considered in obscure abdominal pain.

Mr. Pryor said in conclusion that there was always an answer to the problem of recurrent obscure abdominal pain. It might not be possible to find the answer, but with a careful and detailed history and often further analysis of the pain, combined with adequate examination and investigation and, when appropriate, laparotomy, they might have the opportunity of converting a distressed and often anxious patient, who not infrequently carried the stigma of neurosis, into a normal healthy person—an opportunity all too rare in medicine.

Problems in the Diagnosis of Urinary Calculus.

MR. K. J. NEERHUT said that the purpose of his short paper was to discuss some of the difficulties encountered with the diagnosis of ureteric stone and hyperparathyroidism. The latter disease was a notorious will-o'-the-wisp, but some of the pitfalls and aids to diagnosis with the relevantly common ureteral calculus, particularly when it was on the right side, deserved more prominence than they were generally afforded. Clinically there was rarely any diagnostic doubt when the patient suffered from colic of typical ureteric distribution, perhaps radiating to the testicle and accompanied by gross hæmaturia. If no stone was demonstrable in a plain X-ray film of the renal tract, some modifications in management might be necessary, but the diagnosis of ureteric colic would still be confidently asserted. However, difficulties could arise when a stone reached the middle third of the ureter. The patient might present quite a different picture. Not infrequently pain and tenderness were localized to the iliac fossa and associated with gastro-intestinal symptoms. A calculus impacted in the middle third of the ureter caused pain and tenderness at McBurney's point. On the left side it might mimic diverticulitis, and on the other side it might simulate ovarian or tubal pain. When a plain X-ray film of the renal tract and examination of the urine failed to reveal any further clues, clinical confusion might well result. The question was whether the symptoms were in fact being caused by crystalluria or by a ureteric calculus, which was either radiotranslucent or opaque and too small to be seen. It was, perhaps, equally likely that one of the foregoing mimicking diseases was responsible for the symptoms. Early diagnosis was obviously important. Hamilton Bailey considered that the most confusing differential diagnosis of acute appendicitis was stone in the right ureter, and recommended that if the diagnosis of stone in the ureter could not be confirmed by scientific methods in one hour and the case was an early one, it was safer to remove the appendix. Mr. Neerhut said that it was mainly concerning those scientific methods that he wished to speak. He intended to make a plea for greater use of emergency intravenous pyelography in the early elucidation of clinical uncertainty about obscure abdominal pain. Although Hellstrom in 1936 had described its use in the detection of acute ureteral obstruction, reports indicated that only in the last decade had it been frequently employed. The alternative to immediate pyelography was a plain radiography and a subsequent elective intravenous pyelography, if the plain film revealed no abnormality and if there was doubt about the presence of a ureteric calculus. That programme generally entailed a delay of 48 hours and produced mistakes. Before the report was to hand, an unrecognized mimicking intraperitoneal lesion might have quietly progressed, with a subsequent increase in morbidity and even mortality. Equally important was it that by the time an elective pyelographic examination was performed, a radiotranslucent or small radio-opaque stone might have passed, leaving no trace of its recent presence. Such calculi rarely remained impacted for long in the ureter. The examination had done little more than sow uncertainty in the minds of clinician and patient.

Discussing the intravenous pyelography rate in acute renal colic, Mr. Neerhut said that Keates of Leeds had used the method in all cases of renal colic and had obtained significant findings in 95%. Sandigard had obtained significant findings in 75%. It might be thought that an investigation of that type was inconvenient to an already overworked radiological department. Keates, himself a radiologist, considered that any inconvenience incurred was more than offset by the greatly increased number of positive findings. Mr. Neerhut went on to say that in reading a pyelogram taken for the syndrome under discussion, the following points should be noted. (i) Delayed filling of the renal pelvis should be sought. (ii) A nephrogram should be taken. (iii) Enlargement of the renal shadow should be noted. (iv) Continuous filling of the ureter should be observed. (v) Dilatation of the pelvis and ureter should be noted. (vi) Delayed evacuation should be recorded. Further confusion might be added to the differentiation between ureteric colic and intraperitoneal inflammation by the leucocyte count. That was a test commonly employed to distinguish between intraperitoneal inflammation and ureteric or renal colic. That the count might be elevated in the ureteric colic was not widely appreciated, and could be the source of major clinical error. Mr. Neerhut said that as evidence for the association between leucocytosis and urinary colic he wished to submit two references and two cases. He suspected that only two references were obtainable, because counting of the leucocytes was not a test performed as a routine procedure in obvious cases of ureteric colic. J. K. Ormond stated that acute renal colic was frequently accompanied by elevated leucocyte counts. Carp, in 1937, had reported that of 100 patients with ureteral calculi, 93 had had leucocytosis of varying degrees. Mr. Neerhut then described the first of his illustrative cases. The patient was a healthy young man, who had had two similar attacks of severe right-sided lower abdominal pain eight months apart. In each his urine had been clear on microscopic examination, and in each his leucocyte count had risen to 22,000 per cubic millimetre. On the first occasion appendicitis was diagnosed in mistake for renal colic, which became evident and was proved pyelographically three weeks later. On the second occasion, in view of the recently proved right ureteral calculus, recurrent right renal colic was chosen as the diagnosis. However, some six days after his admission to hospital, a gangrenous per-

forated appendix was removed. Mr. Neerhut pointed out that immediate pyelographic examination would probably have provided an early answer to both those puzzles confused by the leucocytosis. His second case was that of an athletic young man, who had complained of recurrent right-sided lower abdominal pain for nine months. Thorough investigation had revealed no cause. He had been admitted to hospital with severe exacerbation of the pain associated with dull aching in the testicle. Special tests revealed that the leucocytes had risen to 21,000 per cubic millimetre. He had no hæmaturia or pyuria, and no radio-opaque ureteric calculi were present. A cystoscopic examination prior to proposed appendicectomy revealed normal findings and a catheter readily slipped up the right ureter. Exploration of the peritoneal cavity revealed no abnormality, and no perinephric collection was found. Ultimately the suspected but unproven diagnosis was radio-translucent calculus in the right ureter. The diagnosis was substantiated six weeks later when the pain suddenly began on the left side. Six hours after the commencement of the pain the leucocyte count was 19,500 per cubic millimetre. It had been 5,500 on his discharge from hospital three weeks previously, and a pyelogram taken at the same time showed a radio-negative calculus in the left ureter. Had that investigation been performed during his first admission to hospital, probably the fruitless search for an explanation of the leucocytosis would have been avoided. Instead reliance was placed on the pyelogram taken three months earlier, which was perfectly normal. Mr. Neerhut said that the second problem to which he wished to refer was the metabolic investigation of patients with calculi, and in particular the methods of value in the diagnosis of hyperthyroidism. It was with all humility that he ventured to tackle that question, not being a physician or a biochemist. However, they were faced from time to time with such problems as nephrocalcinosis and recurrent stones not due to urinary stasis or infection. Therefore any interest shown in that subject must be pardoned. The true incidence of metabolic stone-formers in the community was unknown. It seemed probable that only by increased clinical curiosity and a greater use of biochemical investigation would progress be made. A small number of cases had been investigated in Ballarat without any conclusive evidence of hyperparathyroidism being obtained. It was from the experience gained in investigating that small group that he spoke. The disorders of calcium metabolism which might present with nephrocalcinosis or renal calcinosis were primary hyperparathyroidism, idiopathic hypercalcuria, renal tubular acidosis, vitamin D intoxication and active osteoporosis. The symptomatology of hyperparathyroidism was of course varied. It might comprise skeletal symptoms (bone pain, spontaneous fracture, hypotonia), renal symptoms (calculi, renal failure) or general symptoms (lassitude, loss of weight, constipation, polyuria). As probably about 75% of the patients presented with renal calculi without skeletal symptoms or signs, some type of screening test for those with recurrent or multiple calculi was necessary. Such screening tests involved either the detection of abnormal losses of calcium in the urine or increased levels of calcium in the blood. However, such tests did not appear to be of great assistance in the diagnosis of hyperparathyroidism for several reasons. In the first place, on the question of hypercalciuria, it was known that 10% of the normal population had hypercalciuria. Also, not all patients with hyperparathyroidism exhibited hypercalciuria. Thirdly, impairment of renal function, which was not uncommon in hyperparathyroidism, reduced the urinary calcium level. On the other hand, serial estimation of calcium and phosphorus levels in the serum appeared to be a much more reliable guide so long as five points were adhered to. The first referred to the estimation of the serum calcium content. The patient should be fasting, no tourniquet should be applied and the result should be between 10·5 and 10·8 mg. per 100 ml. The second referred to the serum phosphorus content, which should be less than 3 mg. per 100 ml. The serum protein content should also be estimated, and the ionized serum calcium content should be estimated if that test was available. Finally, the serum alkaline phosphatase level should be estimated. If the figure was less than 15 King-Armstrong units, then the cause was renal. If the figure was greater than 18 King-Armstrong units, then the source was skeletal. Mr. Neerhut went on to say that once encouragement in the diagnosis had been obtained by the finding of suspicious serum levels, it was justifiable to proceed with more complex investigation, to prove irrevocably the presence of primary hyperparathyroidism. The large variety of tests advocated indicated the difficulty in firmly establishing the diagnosis. They mainly centred around the measurement of a changed renal tubular threshold for phosphorus in the presence of excess parathormone. However, the scheme employed by Professor Dent at the University College Hospital, London, was attractive, in that it was direct, thorough and apparently extremely reliable. Follow-up studies should be carried out to exclude other causes of hypercalcæmia, such as osteolytic bone tumours, overdosage with vitamin D, sensitivity to vitamin D as in sarcoid, idiopathic hypercalciuria of infancy, and immobilization, especially in Paget's disease. A reciprocation test with aluminium hydroxide should also be carried out. Mr. Neerhut said that such a plan provided the biochemical completeness on which the physician had to insist. There was no more room for diagnostic error than there was for exploratory examination in that disease. Once a firm diagnosis had been reached on those grounds, it was up to the surgeon to produce his results. Mr. Neerhut said in conclusion that the discovery of those cases might seem a little like chasing the end of a rainbow. However, he believed that unless an awareness of the condition was fostered by physicians, surgeons and ophthalmologists, there would remain undiagnosed cases of hyperparathyroidism.

Out of the Past.

COMMONWEALTH ARMY OFFICERS.

[From the *Australasian Medical Gazette*, March 20, 1902.][1]

DR. SYDNEY JONES [Sydney] said there was one subject he thought should be considered by the Congress, as it was of interest to every medical man throughout the Commonwealth. He referred to the proposal to transfer Col. Dr. Williams from the Army Medical Corps in New South Wales to a more important position under the Commonwealth Government at a reduced salary. Colonel Williams had been appointed Director-General of the Army Medical Service of the Commonwealth. That was very satisfactory, but the unsatisfactory part of it was that whilst Colonel Williams had a salary of £900 whilst in the service of New South Wales, his salary under the Commonwealth would be reduced to £850. Whilst the services were increased, and position improved, the salary was reduced. This would entail a corresponding decrease in the salary of every medical man in the service, not only under the Commonwealth, but also in the States, and he (Dr. Jones) regarded it as another step in the direction of cutting down the remuneration of the medical profession—a process that had been in operation for some time, and against which they should take a stand, for the result would be the employment in the service of men of less efficiency and less education.

Correspondence.

CARE OF THE AGED AND CHRONICALLY ILL.

SIR: The late Dr. Marjory Warren, "father" of British geriatrics, was warm-hearted, but very realistic and down to earth, and did not suffer fools gladly. Those who remember her with gratitude will enjoy the following story.

During the Pan-Pacific Rehabilitation Conference in 1958, she visited Lidcombe State Hospital and was taken round the wards on inspection. One of the first cases presented to her was a recent hemiplegic. Great pains had been taken to have everything just so. The patient was presented on one of the newly-delivered chromium and "Vynex" sun lounges, of which the hospital was very proud; a bright new rug had also been provided, and there he was—well tucked in to keep out the cold, but perforce, because of this rug and the shape of the couch, with all joints in flexion and immobile. Dr. Warren listened patiently as the ward sister and the doctors displayed the case; but to the close observer there was a growing steeliness in her eye, and when finally there was a pause and all present looked to her expectantly, politeness had lost the battle to honesty, and the rebuke in her voice came out clearly as she said: "Can anyone tell me what he is doing in that thing!" She then took charge, but very firmly instructed those of us present in those simple and fundamental ward procedures for hemiplegics which she considered essential and everyday knowledge in such a hospital.

[1] From the original in the Mitchell Library, Sydney.

In October last year you published a leading article on a report by the N.S.W. Director-General of Public Health, Dr. C. J. Cummins, on the care and rehabilitation of the aged and chronically ill, and in noting your enthusiasm for the comprehensive and ambitious programme he presents, one wonders if Lidcombe State Hospital is any fitter now than it was then to be the "hub", to use the Director's own word, of this Statewide rehabilitation programme. For this is the hospital which Mr. Tony Meuzelaar last year described as providing mass care, but no purposeful nursing or treatment. In his report to the Minister for Health, the director of the world-famed Van de Kolk Institute pointed out that its atmosphere was dull and gloomy and without prospects, and stated that "conditions at present prevailing at Lidcombe are far below to-day's standards and should be adjusted as soon as possible". On another occasion he expressed the opinion that it would take at least five years to do this.

The Director-General assures us in his report that "safeguards will be adopted to ensure that the patient is regarded as a human being, and not as an impersonal medical unit, and that the emphasis on human dignity will be maintained at all times". It would be more to the point if he told us how he intends to raise the atmosphere of this hospital to this level in the first place, and whether within the foreseeable future there will be something to maintain. This drab, unimaginative atmosphere, without hope and with only the barest essentials of human dignity and rights, will not be altered overnight as his report tacitly assumes.

Your article mentions that the Director-General's programme with its hub at Lidcombe will itself centre in the establishment of a Department of Physical Medicine there. Yet this hospital with its 800 patients has but one registered physiotherapist and one unregistered assistant, and is so deficient in the ordinary facilities of social and physical medicine as to make it many years behind ordinary standards and in no position at all to attempt rehabilitation in the modern sense of the word.

Again, when [illegible] visited the hospital, Marjory Warren was emphatic in her advice that no more money should be spent on buildings, but that every available penny be put into increasing the services and the standard of nursing and therapeutic care. She emphasized that this was the only way to provide an increase in the bed potential, and that more buildings were an unreal and illusional solution. Yet the department intends to press on with its expensive multi-storey building project, and presumably will leave the staffing level and ratios much the same as at present. When one realizes that the bulk of the domestic services in the wards are provided from among the 800 social indigents and misfits in the home which is an integral part of this institution, that they are paid an average of 1s. a day and that they bring the atmosphere of the alcoholic, the pervert and the despairing right into the ward itself, one would have hoped for an assurance from Dr. Cummins that he would first tackle this problem.

Finally, the hospital will need a higher standard of nursing care and tradition than the present predominantly custodial one. Most of the nursing and ward supervision is done by attendants who are not trained to Nurses' Registration Board standard, and who incidentally flatly refuse to work under a trained sister. There is no concept of geriatric nursing being a specialty requiring post-graduate training as there is at Mount Royal in Victoria.

The Director-General's report is in a pattern which is not new, in that everything he says has been said before, in various ways, in all parts of the world, in the past 20 to 30 years. On the surface it is a good report, and as you point out, it is encouraging to see such a report from a government department. But when one looks below the surface, serious doubts arise concerning its "commendable realism and humanity" which so impressed the writer of your leading article. The department will need to set its own house in order before it can be so credited.

Yours, etc.,

179 Norton Street, ALAN I. LANE.
Ashfield,
New South Wales.
March 9, 1961.

PULMONARY HYDATID DISEASE.

SIR: The article by Haber, Joseph and Grant in the Journal of March 11, 1961, raises an interesting point in public health. Hydatid is a disease in which the cause is well known and on which much original and even classic work has been done in Australia, yet very little has been done to reduce the mortality or morbidity by public health measures. There has arisen a complacency, indeed, which comes as a surprise to overseas visitors, as can be seen from the following quotation from Lancaster:[1]

> There was much interest in the disease some years ago and it was made compulsorily notifiable in Victoria and Tasmania, but recently there has been but little interest in it. Cole (1945)[2] pointed out that the disease was still of importance in Victoria and that there was gross under-notification, the notified cases in the State being about 73% of the number of deaths. He believed that there were about seven times as many new cases as deaths. Cole pointed out that the deaths from hydatid disease were in excess of those from many of the infectious diseases thought still to be a public health problem. Ferro (1948)[3] has made the same point and maintains that the Australian hydatid rate is equal to the Argentinian rate. He may be quoted:
>
> *Es interestante anotar, que todos los funcionarios que hasta la fecha consulté, daban su impresión dígamos personal, pero nunca podían presentar estadísticas o datos concretos más o menos fehacientes.*
>
> Support may be derived for Ferro's general views by noting the crude death rates in Australia (deaths per million *per annum*) for each of the five periods [1908-10, 1911-20, 1921-30, 1931-40, 1941-45]: for males, 12, 10, 8, 9 and 7; for females, 14, 9, 6, 7 and 5. If one considers the increasing urbanization and the reduced mortality rates at operation, then these moderate declines in the mortality rates must indicate defective public health measures. Ferro (1948) quotes various Australian medical authorities as being satisfied that hydatid disease is no longer a public health problem. This view does not appear to be shared by the veterinarians such as Carne (cited by Ferro) or Seddon (1950).[4] Seddon (1950) believes that routine treatment of dogs for tapeworm is not common and that there has been no reduction in hydatid disease in food animals. It may be that with the rise of the country base hospital fewer patients are now sent to the cities for operation, and so the clinical impression has risen that hydatid disease is much less.

White[5] has followed up Cole's work and finds that in Victoria the fall in mortality from hydatid has been chiefly in the younger age groups. The cases in older people probably represent the results of very long-standing infection.

Possibly if a mortality rate were struck using deaths and years of life exposed for persons in the sheep areas, there would be very little improvement in mortality from this disease. The crude rates for Australia show an improvement possibly only because the proportion of the population in contact with sheep (and dogs in the sheep area) has fallen with the increasing urbanization.

Yours, etc.,

Department of Mathematical Statistics, University of Sydney. H. O. LANCASTER.
March 13, 1961.

PAGET'S DISEASE OF BONE IN NEW SOUTH WALES.

SIR: Paget's disease of bone appears to be more common in this country than elsewhere. From my own observations it is common in England, but less frequently seen in the United States, and is extremely rare, and possibly unknown, in the Chinese. In Sydney I have only noted it in those of Anglo-Saxon origin. Moreover, of those cases who were admitted, and cross-indexed as having Paget's disease, to Royal Prince Alfred Hospital during the last ten years, all were either born in this country or migrated here from the United Kingdom—with one exception. This was a man born in Germany.

[1] MED. J. AUST., 1954, 1: 506.
[2] *Hlth. Bull.*, 1945, Department of Health, Victoria: Nos. 81 and 82.
[3] *Bol. Soc. Hidatid. (Buenos Aires)*, 1948, 1: 2.
[4] "Diseases of Domestic Animals in Australia: Part I. Helminth Infections", Service Publication (Division of Veterinary Hygiene), 1950, Number 5, Department of Health, Canberra.
[5] MED. J. AUST., 1958, 2: 378.

It is not very unusual to find more than one case of Paget's disease arising in the same family, but there has been no good evidence to suggest that this is anything more than coincidental. Recently, however, I have seen a man with a sarcoma of the humerus arising in Paget's disease who had a brother with a similar sarcoma of the sacrum. Other members of this family also had Paget's disease. In view of this, it would seem wise to investigate the family and environmental history of these cases more fully.

It would be interesting to know if any of your readers have seen this disease in New Australians apart from those of British origin, or have noted cases with a strong family history similar to the one above.

Yours, etc.,

135 Macquarie Street, Sydney.
March 17, 1961.

HUGH C. BARRY.

THE BABY'S BIRTHRIGHT.

SIR: If the medical profession wishes women to breast feed, they must find out why they do not. The following ideas may or may not be relevant.

In Hospital.

1. From the beginning, breast feeding should be a pleasure. The multipara knows that if she holds the baby with its cheek against her nipple, the baby will turn its head with open mouth in the right direction. Most primiparas do not know this. The nurse holds the baby's head with pressure on each cheek. The baby turns its head from side to side and screams. The mother finds this battle to get the baby to accept her acutely distressing.

2. The readiness with which complementary feeds are offered. If the baby is not satisfied after a feed, it is surely better to feed it earlier next time (especially when the baby is rooming in) than to fill it up with a bottle and repeat the process in four hours.

3. Expression. This is not only a distasteful, but an extremely painful process, often resulting in cracked nipples which may blast the mothers' hopes of breast feeding. I wonder if I would have breast-fed three babies if subjected to this pain with the first. All mothers should be asked if willing to express for the premature babies and thanked for doing so. The only painless contraption for expression is a baby.

4. The ten minutes each side idea with which mothers are indoctrinated in hospital must lead to many discontented babies and ultimate bottle feeding. Most babies like to suck much longer than this.

The Mother-To-Be.

She sees her friends' bottle-fed babies and once bottle-fed children thriving, and finds it hard to believe that breast milk can confer its claimed benefits. It is no good saying "breast-fed babies have better teeth" unless you can add "although the bottle-feeding mothers supervised tooth-cleaning after meals and forbade snacks between".

She knows the first child (breast-fed) who "gave its mother hell" and still sucks its thumb, and the second (bottle-fed) who was "so easy". Has no one conducted a survey to show that the difficult first baby is not the product of breast feeding, but of the inexperienced mother? Or . . . ?

The Obstetrician.

The obstetrician must be prepared to find out the woman's real reasons for not wanting to breast feed and discuss them understandingly—not with the attitude that she is a wicked woman trying to deprive the baby of its birthright.

More stress could be laid on the convenience of breast feeding and the havoc that cuts in electricity, gas or water can play in the bottle-feeding regime, and less on the devoted motherhood scheme, which gives the breast-feeding mother a suspicion that she must be sacrificing something (although she does not know what) for the sake of her baby and is missing something desirable. Tell her what a perfect excuse breast feeding makes to retire from the spate of adoring relatives and read or write letters. That if this is her second child she will have a free arm for her first and can read him a story while she cuddles both children—surely a more attractive idea than including him by letting him help hold the bottle, which he will probably push down his sibling's throat.

If you doctors are having little success appealing to the mother's "better nature", then tell her to be selfish and breast feed. Then mother will put her feet up and feed the baby while the friend who offers to help hangs up the nappies.

The bottle feeder is obviously not "renouncing the most exquisite of human pleasures". This comes from seeing the baby's enjoyment and feeling the baby snuggle and curl up its toes with relish. Any breast feeder who has fed another's baby with a bottle knows this, and I say this for the comfort of adopting mothers.

Modesty.

The greatest deterrent to breast feeding is that we wear clothes. Mothers, doctors and hospitals are all blameless compared with our way of life. If we threw away our inhibitions we would throw away our bottles. The mother of young children, often in a new house without fence or curtains, finds it best for the family as a whole to bottle feed, as she can then emerge to stop A from hitting B with a brick or C from running on the road without interrupting the feed. Is there any reason why she could not keep the early morning and evening breast feeds, which make life so much easier for her, and bottle feed during the day? It is an idea which doctors never suggest. Cows do not dry up on two milkings a day.

Conclusion.

I write this letter in the belief that doctors will never "sell" natural feeding to an unnatural community without a little "consumer research". I base it on the experience of two and a half years' breast feeding and seven years spent watching the development of my own and friends' children.

Yours, etc.,

Adelaide.
Undated.

DOCTOR'S WIFE.

THE SENDING OF PILLS BY POST.

SIR: A piece of legislation which is long overdue is the law to prohibit the posting of sample pills of all descriptions, with no regard to their toxicity if eaten by children. As a general practitioner, I would say that they are just so much extra clutter on the office table, and have no value in sales promotion.

When drug samples are handed to me by the detailer, at least I have the chance, which I often take, of refusing delivery.

Yours, etc.,

13 East Street,
Rockhampton,
Queensland.
March 21, 1961.

R. A. WILSON.

AN AUSTRALIAN MEDICAL ASSOCIATION.

SIR: The worst fault of the Federal Council of the British Medical Association has been that it is often out of touch with the general body of members. The proposed constitution of the Australian Medical Association does nothing to remedy this.

The trouble lies in the very indirect method of election to the governing body. Ordinary members in New South Wales are only allowed to vote for members of the N.S.W. Branch Council. Even this election is unsatisfactory, because the voters are not told the policies of candidates and are not told which councillors voted for unpopular motions. The Branch Council then chooses the N.S.W. representatives on the Federal Council. These representatives are not responsible to ordinary members, and there is no effective procedure by which the doctors of N.S.W. can remove a Federal Councillor of whose policy they disapprove. I have been told that some States manage these matters better than N.S.W. There would need to be some improvement in procedure before N.S.W. doctors are asked to extend the powers of the Federal body.

General meetings of members of the State branch have done much to overcome the above problems. For example, the general meeting last July must have enlightened our Federal Councillors about members' views on pharmaceutical benefits. Similarly two years ago, Federal Council passed an outrageous motion on medical companies which was

blocked only because under the present constitution it had to be referred to a general meeting.

It is a serious fault of the proposed constitution that no provision is made for obtaining opinions directly from members. What is worse is that there is no effective way for ordinary members to challenge the decisions of the new Federal body. For example, under the rules of the N.S.W. Branch any 20 members may demand a general meeting to challenge the policy of the N.S.W. Council, but no safeguard of this type is written into the new Federal constitution. It is, of course, impracticable to hold a general meeting that every member in Australia can attend; but there are alternatives (such as postal ballots, simultaneous general meetings in each capital, *etc.*) that are at least a partial solution. My complaint is that the persons responsible for drafting the new constitution have made no attempt to meet this need.

Yours, etc.,

F. M. HOOPER,
Cnr. Garden Street and Maroubra Road,
Maroubra,
New South Wales.
March 24, 1961.

FURALTADONE—A CLINICAL TRIAL.

SIR: I am concerned to read an article in this Journal (March 4), recommending the use of furaltadone. Trials elsewhere have not suggested that it will have a useful place in the treatment of staphylococcal infections, and several reports refer to its toxicity (McCabe, Davis, Anderson and Jackson;[1] Mast;[2] Byrne and Goldsmith[3]), including nausea, vomiting, fever and peripheral neuropathy. To illustrate that these dangers are not merely theoretical, I should like to quote briefly a case with which I was concerned.

A ten-year-old girl suffering from osteomyelitis of the tibia was given furaltadone in addition to penicillin and tetracycline. After three weeks she developed diplopia, followed in a few days by aphonia, dysphagia and widespread peripheral neuropathy so severe that respirator treatment was considered. Since not a great deal was known about its effects, furaltadone was ceased and the patient eventually, after several weeks, made a complete recovery. That the furaltadone was indeed to blame is evidenced by the report of a similar case by Mast.[2]

It would be a pity if this potentially dangerous substance should come into widespread use in Australia when other efficient drugs are available for control of staphylococcal infection.

Yours, etc.,

R. GODFREY.
Princess Margaret Hospital for Children,
Perth,
Western Australia.
March 16, 1961.

HÆMOLYTIC DISEASE OF THE NEW-BORN.

SIR: I should like to make a few comments regarding the articles published on March 18, 1961, on hæmolytic disease of the new-born. From experience in 1957 drawn from Hollman's special unit in London for treatment of these babies, I find that they agreed with Dr. Robertson's figures of 4 mg. per 100 ml. as indication for transfusion. Also considered was the hæmoglobin level and strength of the Coombs test, but the direct bilirubin level was the main factor considered.

Amniotic taps were not then practised. Value was placed on rise in titre of agglutinins at the second examination in considering induction. Blood was cross-matched for all cases on admission where rise in antibodies had been detected irrespective of titre.

The causes of death in the two or three cases in that year were streptococcal septicæmia following femoral cut-down and right-sided failure in babies more severely affected before transfusion was commenced. No mention was made in the articles here of the problem of septicæmia, which we found a very real one. At first the practice was one umbilical vein transfusion followed by femoral vein transfusion in multiple transfusions. Later we found it satisfactory to bend the catheter *in situ* in the umbilical vein under antibiotic cover and its use two or three times in severe cases was done without infection.

Whole blood was used and anæmia in several babies had to be treated before discharge by scalp-vein transfusion.

As these techniques require skill and experience gained by dealing with many cases, I agree that the treatment of these cases is a medical emergency for a large centre.

Yours, etc.,

SHIRLEY GRIEVE.
19 Blenheim Street,
Randwick,
New South Wales.
March 18, 1961.

[1] *New Engl. J. Med.*, 1960, 263: 927.
[2] *New Engl. J. Med.*, 1960, 263: 963.
[3] *New Engl. J. Med.*, 1960, 263: 975.

THE MEDICAL PRACTITIONERS SUPERANNUATION FUND.

SIR: The above fund expects its record to be maintained this year—namely, 6% on invested funds, which is the same as the preceding year. This accumulation is free of tax to the subscribing member.

It is felt by the trustees that medical practitioners are not using this or similar funds as much as they may do. The scheme is sound, it has a sound past history, and the future can be regarded with great confidence. The fund is attractive to medical practitioners of all ages, but its appeal is especially applicable to the young practitioner. This fund is purely mutual, and, apart from necessary office expenses, its income is distributed to the accounts of members annually.

Inquiries should be made to the registered office of the Fund, at Box 686, P.O., Newcastle, N.S.W.

Yours, etc.,

A. J. OSTINGA,
Chairman of Trustees.
T. & G. Building,
Cnr. Hunter and Watt Sts.,
Newcastle,
New South Wales.
March 21, 1961.

AN UNUSUAL EAR INFECTION.

SIR: During the past few weeks I have seen several odd-looking ears, and in every case the diagnosis has been the same. As this is rather an interesting condition and it does seem to be "going around" at the moment, I thought some practitioners might care to read a description of it.

Influenzal or hæmorrhagic otitis externa (sometimes also referred to as bullous myringitis) is an extremely painful condition, and the intense earache causes the sufferer to seek the services of a physician fairly promptly. At this early stage deafness is absent or so slight as to be barely detectable. Onset of the condition is commonly preceded by "'flu" or a severe cold, but occasionally it appears "out of the blue".

On examination of the ear, what at first glance appears to be a swollen red drum head will be seen to consist of a variable number of deep red bullæ on the surface of the drum. These may be confluent, but usually one can see a portion of the drum which looks normal or perhaps has a bluish tint but is not bulging. Inspection of the adjoining meatal walls will usually reveal the presence of more bullæ. If the pain has considerably subsided by the time the patient is seen, then rupture of a bulla has occurred, and this usually results in a small amount of blood-stained discharge. The drum by this time may present a most complicated appearance, with debris and clotted blood obscuring the picture; and an uncooperative patient who is very intolerant of aural toilet further complicates one's examination.

The keys to the diagnosis are the history, careful examination of the drum and the absence of deafness. Testing for the latter is the most important single clinical observation that one can make in such a case, and this finding governs both diagnosis and treatment. Additional aids in assessing deafness are the Rinne and Weber tuning-fork tests (best tested with C_3 or 512), but unfortunately the findings are not always consistent. The presence of a negative Rinne (bone $>$ air) together with a Weber lateralizing to the affected ear usually indicate middle-ear infection or fluid in

the ear, but occasionally the latter condition may be present and the tuning-fork reactions remain normal.

If the history and findings bear out the diagnosis, then I believe one is justified in treating the case with analgesics only. The condition is believed to be viral in ætiology, so this would appear to be rational therapy. However, if the hearing deteriorates, as it does in a percentage of these cases, then antibiotics should undoubtedly be administered. It becomes something of an academic point whether or not the fluid in the middle-ear cavity is infected or not—few practitioners would be prepared to gamble on this and withhold antibiotics.

There can be no doubt that the introduction of antibiotics has virtually eliminated the "acute mastoid", and no one would be foolish enough to deny that this has been a wonderful medical advance. However, the condition described above is frequently mistaken for an otitis media, and in the interests of accurate diagnosis it is felt little harm should result from setting forth these few details.

Yours, etc.,

53 East Esplanade,
Manly,
New South Wales.
March 21, 1961.

DALLAS FINNEY.

THE DANGERS OF PHENYL-CONTAINING DRUGS.

SIR: I am much concerned about the possible long-range dangers of drugs containing the phenyl radical or group. The antihistamines and the phenazones are the chief groups of drugs concerned. In the early days of "Chloromycetin", we received plenty of warnings from its indiscriminate use in the United States.

It is not the occasional use of "Benadryl" for hay-fever or phenacetin for headache which worries us; but it is a fact that thousands of psychiatric patients are being sent home with instructions to take phenazones for the rest of their lives. Are we sure that the increase of leukæmia, aplastic anæmia and even cancer (in the widest sense of that word) is not due as much to the regular and sustained use of phenyl-group drugs as to the excessive use of X rays for diagnosis? It is well known that psychotics and psychoneurotics are less susceptible to malignant disease than apparently normal people. Could this be because "normal" people manufacture and constantly maintain in their tissues some phenazone-like substance which keeps them calm and stable? Only research can answer these important questions.

Yours, etc.,

Carnarvon,
Western Australia.
Undated.

S. C. S. COOKE.

Obituary.

JAMES STEWART.

WE are indebted to Professor John Loewenthal for the following account of the career of the late Dr. James Stewart.

It has repeatedly been pointed out by both poet and philosopher that the great men of an era are not necessarily those whose names are associated with high achievements or wonderful discoveries. Rather is it almost a modern pastime to uncover the personal clay feet of many who have been traditionally idolized and to denigrate their achievements. It has become recognized at the same time that the really significant men of an age are often those whose names may be known intimately to a comparatively small group, in which, because of their qualities of character, charm of personality and habits of personal service and skill, they are respected and loved to a most wonderful degree. Such a man was James Stewart of Maitland, whose death on March 13, 1961, has torn a gaping hole in the fabric of the life of his city, and whose many friends will long feel a sense of emptiness and loss at his going.

The pattern of his early upbringing was such that a life of great value to his fellow man might, in retrospect, have been anticipated. His father, Reverend S. P. Stewart, was a Minister of the Free Presbyterian Church of Australia in Taree, New South Wales, and was undoubtedly one of the scholars and orators of his time. As was not unusual in those days, the Manse was situated some miles out of the town, high on a hill in a bend of the lovely Manning River, the centre of a small holding which was farmed, and where horses were bred and loved. James was the eldest son, and, as a boy, would each day ride eight miles to and from school in Wingham, and on the Sabbath would have to drive his father in horse and trap to as many as three different widely-separated congregations, and listen to the sermons. And in those days, free of the encumbrances of the modern media of mass information, the spoken word was important and studied carefully by both preacher and hearer—and was not stinted. In the home, knowledge and honesty were revered, generosity and charity were practised and personal effort alone gained reward.

From such a background James Stewart entered the University of Sydney to study law, but after completing Arts I, felt that his vocation lay in medicine. He graduated in 1915, became a resident medical officer at Royal Prince Alfred Hospital in 1916, sailed for France as Regimental Medical Officer of the 54th Battalion, and spent the remainder of the war in service either with this unit or with the 14th Field Ambulance. In 1919 he, with others of his colleagues, was allowed a period in London for post-graduate work. On his return to Australia he spent six months at the Women's Hospital, Crown Street, Sydney, to relearn his obstetrics, and in 1920 he commenced practice in Maitland, where he remained for the ensuing 41 years. The period at Crown Street had an abiding influence on this practice. The drama and challenge of obstetrics had a great attraction for him, and he became a most skilful *accoucheur* whose services were frequently sought by his colleagues throughout the whole district. He took the keenest delight in this work, and in a difficult confinement identified himself so closely with both the mother and the child that his interest in both of them never flagged. His satisfaction was always great at the subsequent achievements of such a child at school or university, at sport, or indeed as the parent of yet another generation.

Though midwifery claimed his major interest, James Stewart's medicine was of a high order. He was one of those fortunate men who appear to have an effortless yet accurate clinical sense, and whose clear perception of disease—and health—discards the unimportant detail and appreciates the basic condition clearly.

In the Hunter Valley, there are today innumerable people who are, in their various ways, mourning the passing of one who was "their doctor" in every way. His presence gave them confidence, his skill gave them ease and his friendship uplifted them. His shortcomings they readily forgave, and his foibles they tolerated, as they knew him, from long experience, to be the kind and generous man of quality that he was. His selfless and devoted service to his fellow man—a service in which his wife and family shared—was its own reward and fulfilment.

Royal Australasian College of Surgeons.

PRIMARY EXAMINATION FOR THE F.R.A.C.S.

A PRIMARY EXAMINATION for Fellowship of the Royal Australasian College of Surgeons, in anatomy (including normal histology) and applied physiology and the principles of pathology, will be conducted in Melbourne and Sydney in August and September, 1961.

The written papers will be held simultaneously in the two centres on Thursday and Friday, August 31 and September 1, 1961. The examiners will visit the two centres for the purpose of conducting the viva-voce sections of the examination, which will commence in Melbourne on September 4 and in Sydney on September 11, 1961.

The examination is reciprocal with the primary examination for fellowship of the Royal College of Surgeons of England, the Royal College of Surgeons of Edinburgh and the Royal College of Surgeons in Ireland, or the primary examination in surgery of the Royal Faculty of Physicians and Surgeons of Glasgow, and The College of Physicians, Surgeons and Gynæcologists of South Africa.

Each examination is open to graduates of not less than one year's standing of a medical school approved by the Council of the College for the purpose.

Candidates must submit evidence of their qualifications and date of acquirement thereof.

Forms of application for admission to the examination may be obtained from the Secretary, Royal Australasian

College of Surgeons, Spring Street, Melbourne, C.1, Victoria. When entering for the examination candidates must state whether they desire to appear before the Board of Examiners in Melbourne or Sydney.

The fee for admission or readmission to the examination is £31 10s., plus exchange on cheques drawn on banks outside Melbourne. The fee must be forwarded with the form of application so as to reach the Secretary at his office in Melbourne not later than July 19, 1961. It is stressed that late entries cannot be accepted.

Copies of the regulations governing the examinations for fellowship are available on application.

FACULTY OF ANÆSTHETISTS: PRIMARY FELLOWSHIP EXAMINATION.

A PRIMARY EXAMINATION for Fellowship of the Faculty of Anæsthetists of the Royal Australasian College of Surgeons, in anatomy, physiology, pharmacology and pathology will be conducted in Melbourne and Sydney in August and September, 1961.

The written papers will be held simultaneously in the two centres on Thursday and Friday, August 31 and September 1, 1961. The examiners will visit both centres for the purpose of conducting the viva-voce sections of the examination, which will commence in Melbourne on September 4 and in Sydney on September 11, 1961.

The examination is reciprocal with the primary examination for Fellowship of the Faculty of Anæsthetists of the Royal College of Surgeons of England.

Each examination is open to graduates of not less than one year's standing of a medical school approved by the Council of the College for the purpose.

Candidates must submit evidence of their qualifications and date of acquirement thereof.

Forms of application for admission to the examination may be obtained from the Secretary, Faculty of Anæsthetists, Royal Australasian College of Surgeons, Spring Street, Melbourne, C.1, Victoria.

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Post-Graduate Work.

THE POST-GRADUATE COMMITTEE IN MEDICINE IN THE UNIVERSITY OF SYDNEY.

Post-Graduate Conference at Bathurst.

THE Post-Graduate Committee in Medicine in the University of Sydney announces that, in conjunction with the Western District Medical Association, it will hold a post-graduate conference in the Nurses' Recreation Room at the Bathurst District Hospital on Saturday and Sunday, April 29 and 30, 1961. The programme is as follows.

Saturday, April 29: 2 p.m., registration; 2.30 p.m., "Recent Trends in the Management of Habitual Abortion and Rh Incompatibility", Associate Professor R. P. Shearman; 4 p.m., "Diagnostic Problems in Psychological Medicine", Dr. John Ellard.

Sunday, April 30: 10 a.m., "The Early Diagnosis of Carcinoma of the Cervix", Associate Professor R. P. Shearman; 11.30 a.m., "Psychiatric Treatment in General Practice", Dr. John Ellard; 2 p.m., "The Problems of Anæmia and Leukæmia", Dr. R. J. Elvy.

The fee for attendance at the course is £3 3s., and those wishing to attend are requested to notify Dr. Brooke Moore, 142 William Street, Bathurst, as soon as possible. Telephone: Bathurst 2345.

DISEASES NOTIFIED IN EACH STATE AND TERRITORY OF AUSTRALIA FOR THE WEEK ENDED MARCH 4, 1961.[1]

Disease.	New South Wales.	Victoria.	Queensland.	South Australia.	Western Australia.	Tasmania.	Northern Territory.	Australian Capital Territory.	Australia.
Acute Rheumatism	..	1(1)	2	..	..	..	..	..	3
Amœbiasis	..	..	..	..	..	..	..	..	..
Ancylostominasis	1	..	..	..	..	..	2	..	3
Anthrax	..	..	..	..	..	..	..	..	..
Bilharziasis	..	..	..	..	..	..	..	..	..
Brucellosis	..	1	..	..	..	..	..	..	1
Cholera	..	..	..	..	..	..	..	..	..
Chorea (St. Vitus)	..	..	..	..	..	..	..	..	..
Dengue	..	..	..	..	..	..	..	..	..
Diarrhœa (Infantile)	5(1)	6(5)	2(1)	..	..	..	16	1	30
Diphtheria	..	..	..	..	..	..	..	..	..
Dysentery (Bacillary)	..	..	..	28(28)	..	..	..	..	28
Encephalitis	1(1)	..	..	..	..	..	..	..	1
Filariasis	..	..	..	..	..	..	..	..	..
Homologous Serum Jaundice	..	..	..	..	..	..	..	..	..
Hydatid	..	..	..	..	..	..	..	..	..
Infective Hepatitis	125(50)	58(31)	22(4)	29(9)	8(1)	13(2)	1	10	266
Lead Poisoning	..	..	2	..	..	..	..	..	2
Leprosy	..	..	..	..	..	..	..	..	..
Leptospirosis	..	..	..	..	..	..	..	..	..
Malaria	..	..	..	..	..	..	..	..	..
Meningococcal Infection	..	..	..	..	..	..	..	..	..
Ophthalmia	..	..	..	..	..	..	..	..	..
Ornithosis	..	..	..	..	..	..	..	..	..
Paratyphoid	..	..	..	..	..	..	..	..	..
Plague	..	..	..	..	..	..	..	..	..
Poliomyelitis	2	..	..	..	1	..	..	..	3
Puerperal Fever	..	..	..	..	..	..	..	..	..
Rubella	10(6)	1(1)	1	5(5)	..	..	..	..	17
Salmonella Infection	..	..	1(1)	..	..	..	..	..	1
Scarlet Fever	2(1)	5(3)	2(1)	1(1)	1(1)	3(2)	..	..	14
Smallpox	..	..	..	..	..	..	..	..	..
Tetanus	..	..	3(3)	..	..	..	..	..	3
Trachoma	..	..	..	..	..	..	..	..	..
Trichinosis	..	..	..	..	..	..	..	..	..
Tuberculosis	15(9)	16(13)	4(2)	4(2)	2(1)	3	2	..	46
Typhoid Fever	..	1(1)	..	1(1)	..	..	..	..	2
Typhus (Flea-, Mite- and Tick-borne)	..	..	..	..	..	..	..	..	..
Typhus (Louse-borne)	..	..	..	..	..	..	..	..	..
Yellow Fever	..	..	..	..	..	..	..	..	..

[1] Figures in parentheses are those for the metropolitan area.

SEMINARS AT THE ROYAL PRINCE ALFRED HOSPITAL.

Alterations to Programme.

SOME alterations in the programme of seminars at the Royal Prince Alfred Hospital for April and May, 1961, have become necessary. The changes are as follows.

April 14: previously cardiology; now endocrinology—"Clinical Significance of Chromosomal Abnormalities", Associate Professor R. P. Shearman and Dr. Brian Turner (by invitation).

April 28: Dermatology, as before; subject now announced: "The Diagnostic Significance of the Minute Skin Vesicle", Professor Ingram, Department of Dermatology, University of Durham (by invitation).

May 12: Thoracic Unit, as before; "The Effect of Smoking on Heart, Lung, Gut and Mind", Dr. M. R. Joseph, Dr. J. G. Richards (replacing Dr. J. H. Halliday), Dr. R. S. Packard and Dr. D. C. Maddison.

May 19: Previously endocrinology, "Chromosomal Abnormalities"; now cardiology—"Left Ventricular Cardiomyopathy as a Cause of Sub-Aortic Stenosis", Dr. Eugene Braunwald, National Heart Institute, Bethesda, Md. U.S.A. (by invitation).

May 26: Psychiatry, as before; subject now announced: "Injury at Work. The Psychological Side", Professor W. H. Trethowan.

Notes and News.

Course in England in Development and Evaluation of Drugs in Medicine.

The British Council announces that a course in the development and evaluation of drugs in medicine will be held at Alderley Edge (near Manchester), London and Oxford from May 30 to June 13, 1961. The course is intended for overseas clinical research workers in medicine, physiology or pharmacology; there are vacancies for 20 members. The course is intended to demonstrate methods and problems of developing drugs on animals, their transfer to man, methods of measuring their detailed effects on individuals and methods of assessing their value in therapeutics. Details of the programme and further information may be obtained on application to The British Council, 18 Greenoaks Avenue, Edgecliff, Sydney, N.S.W.

Twentieth International Post-Graduate Medical Course.

The Czechoslovak Society of Physical Medicine announces that the twentieth International Post-Graduate Medical Course will be held from September 18 to 23, 1961, at Karlovy Vary, Carlsbad. The main subject of the course will be diabetes mellitus, but other topics will be discussed. Papers will be read by research workers from a number of countries. The official languages of the course are English, French, German, Russian and Czech; simultaneous translation will be provided. Excursions and social events will be arranged for participants and their families. Further information may be obtained on application to the Czechoslovak Society of Physical Medicine, Albertov 7, Praha 2, Czechoslovakia.

Nuffield Foundation Australian Advisory Committee: Research Grant.

The Chairman of the Nuffield Foundation Australian Advisory Committee, Mr. Colin Syme, has announced that a grant of up to £1610 has been made to Professor N. F. Stanley, Department of Microbiology, University of Western Australia, to provide the salary of a research assistant for his project on the relationship of HEV-and reoviruses. The HEV (hepatoencephalomyelitis virus), the prototype of a new group of viruses, was first isolated and described by Dr. Stanley in Sydney in 1953. Since that time the virus, which produces steatorrhœa in infant mice, has been detected in India, Holland and U.S.A. During 1959 and 1960 the properties of a new group of viruses, termed "reovirus" and considered to be highly ubiquitous, were described in the U.S.A. Professor Stanley has just shown that these reoviruses are identical with HEV. He proposes to carry out investigations to elucidate more clearly their physical and genetic properties and to study their ecology and epidemiology, with particular regard to determining whether they are associated with disease in man. Strains have been isolated from the respiratory tract and fæces of humans, and from some patients with steatorrhœa. Further study is required to assess the significance of these findings.

Nominations and Elections.

THE undermentioned have applied for election as members of the New South Wales Branch of the British Medical Association:

Lecky, Jocelyn Olive Helen, M.B., B.S., 1960 (Univ. Sydney), B2/7 Ocean Avenue, Double Bay.

Farnsworth, Robert Housley, M.B., B.S., 1960 (Univ. Sydney), Sydney Hospital, Sydney.

Diary for the Month.

APRIL 11.—New South Wales Branch, B.M.A.: Executive and Finance Committee.
APRIL 13.—New South Wales Branch, B.M.A.: Public Relations Committee.
APRIL 14.—Queensland Branch, B.M.A.: Council Meeting.
APRIL 15.—Queensland Branch, B.M.A.: Seventh Branch Convocation.
APRIL 17.—Victorian Branch, B.M.A.: Finance Subcommittee.

Medical Appointments: Important Notice.

MEDICAL PRACTITIONERS are requested not to apply for any appointment mentioned below without having first communicated with the Honorary Secretary of the Branch concerned, or with the Medical Secretary of the British Medical Association, Tavistock Square, London, W.C.1.

New South Wales Branch (Medical Secretary, 135 Macquarie Street, Sydney): All contract practice appointments in New South Wales.

South Australian Branch (Honorary Secretary, 80 Brougham Place, North Adelaide): All contract practice appointments in South Australia.

Editorial Notices.

ALL articles submitted for publication in this Journal should be typed with double or treble spacing. Carbon copies should not be sent. Authors are requested to avoid the use of abbreviations, other than those normally used by the Journal, and not to underline either words or phrases.

Authors of papers are asked to state for inclusion in the title their principal qualifications as well as their relevant appointment and/or the unit, hospital or department from which the paper comes.

References to articles and books should be carefully checked. In a reference to an article in a journal the following information should be given: surname of author, initials of author, year, full title of article, name of journal, volume, number of first page of article. In a reference to a book the following information should be given: surname of author, initials of author, year of publication, full title of book, publisher, place of publication, page number (where relevant). The abbreviations used for the titles of journals are those of the list known as "World Medical Periodicals" (published by the World Medical Association). If a reference is made to an abstract of a paper, the name of the original journal, together with that of the journal in which the abstract has appeared, should be given with full data in each instance.

Authors submitting illustrations are asked, if possible, to provide the originals (not photographic copies) of line drawings, graphs and diagrams, and prints from the original negatives of photomicrographs. Authors who are not accustomed to preparing drawings or photographic prints for reproduction are invited to seek the advice of the Editor.

Original articles forwarded for publication are understood to be offered to THE MEDICAL JOURNAL OF AUSTRALIA alone, unless the contrary is stated.

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